

FIG. 1



FIG. 2(a)

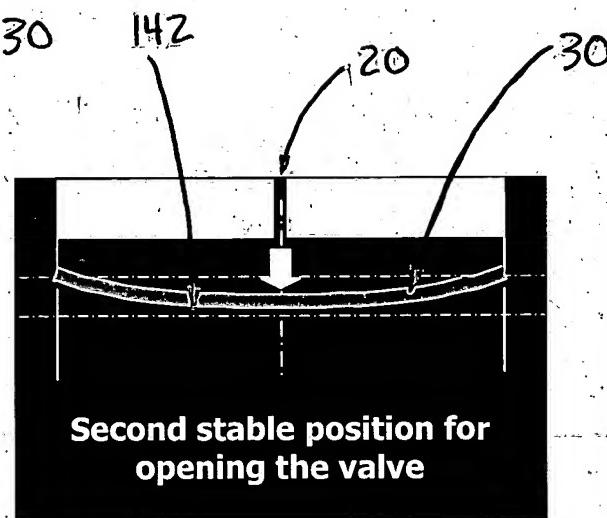
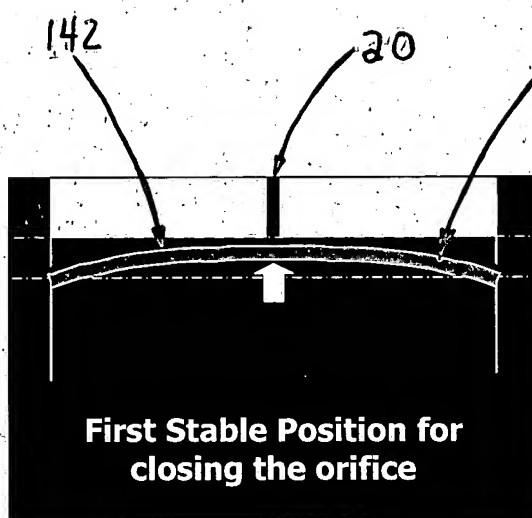


FIG.2(b)

FIG. 2(c)

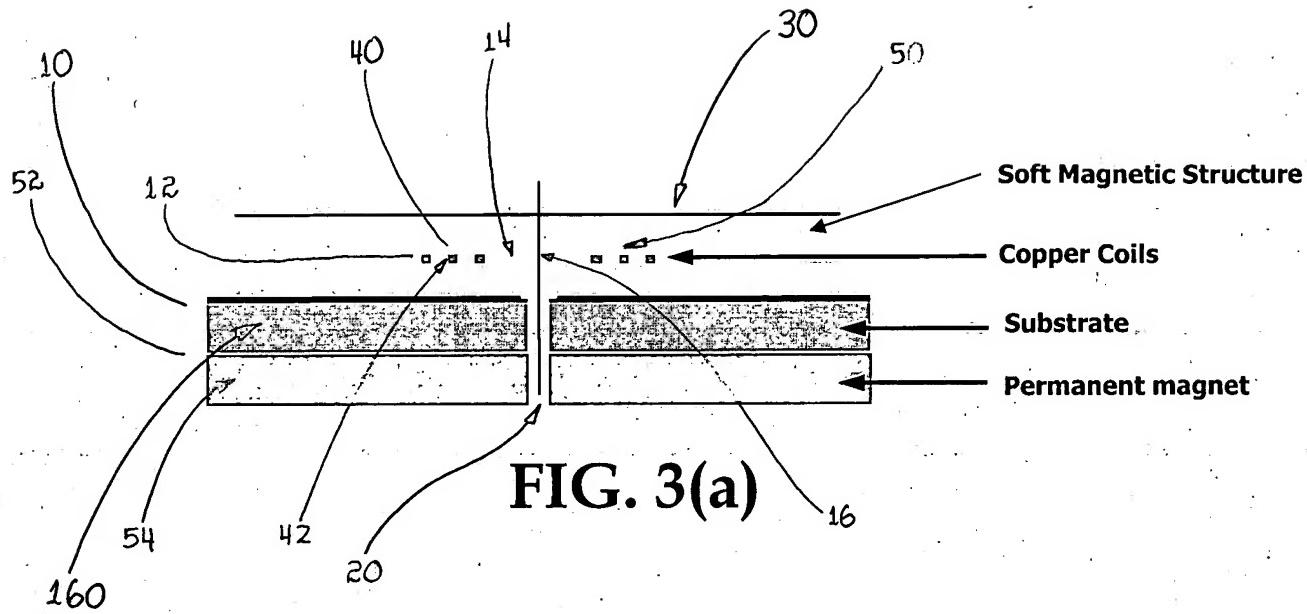


FIG. 3(a)

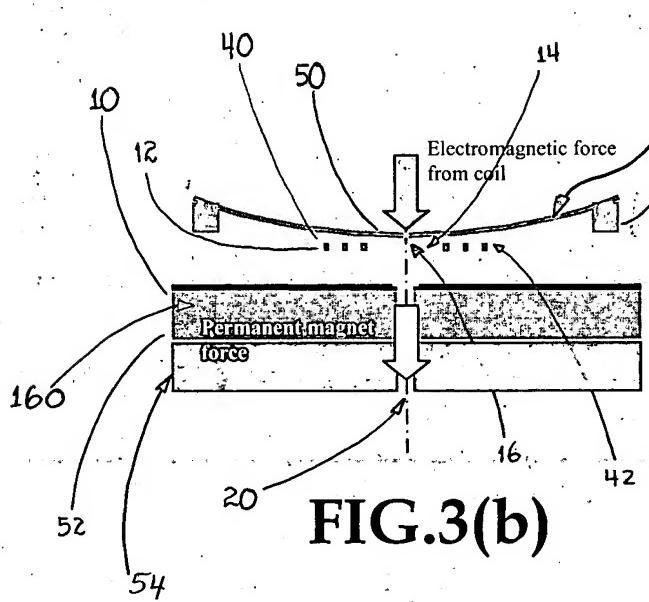


FIG. 3(b)

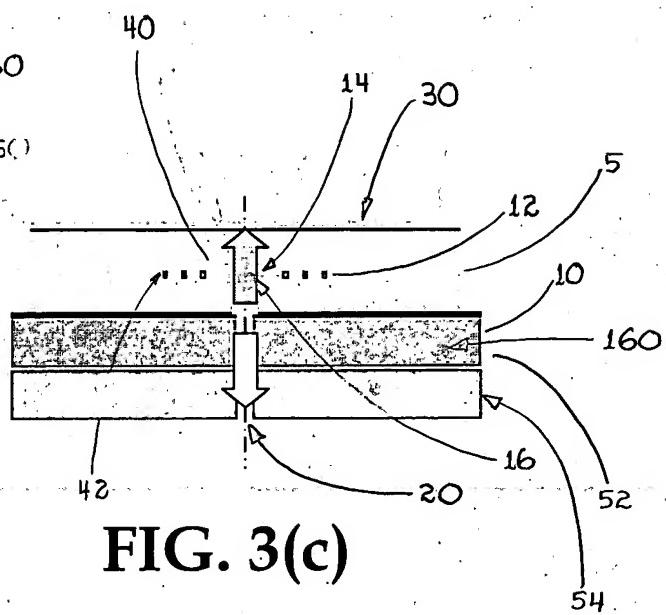
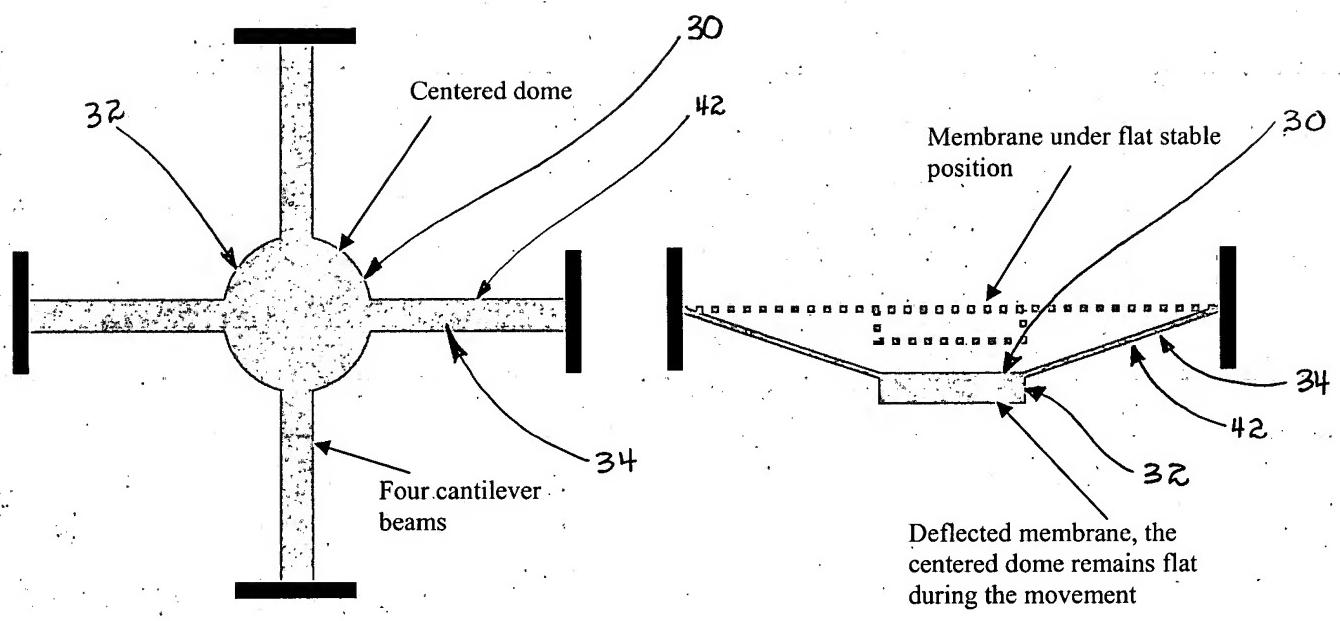


FIG. 3(c)



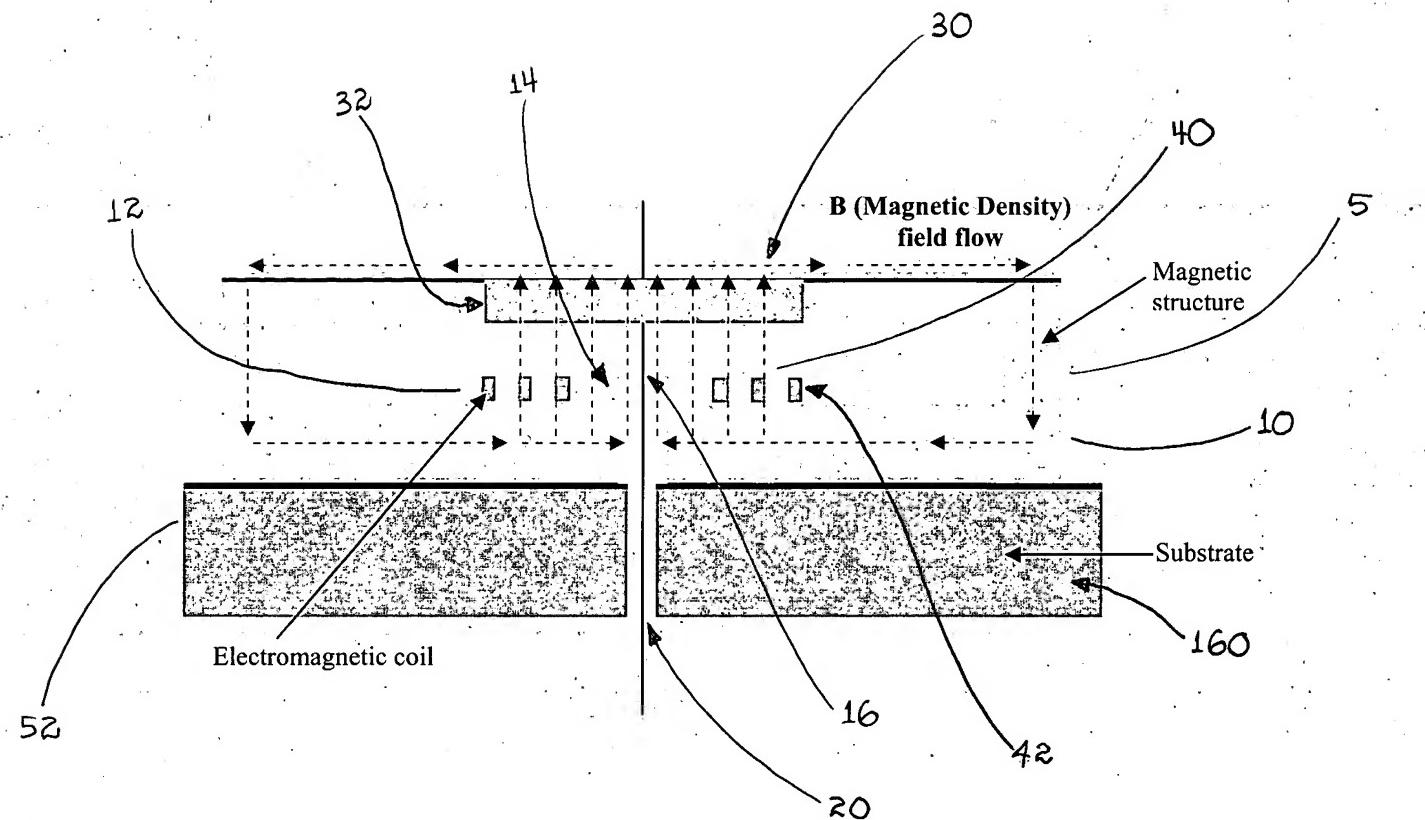


FIG. 5

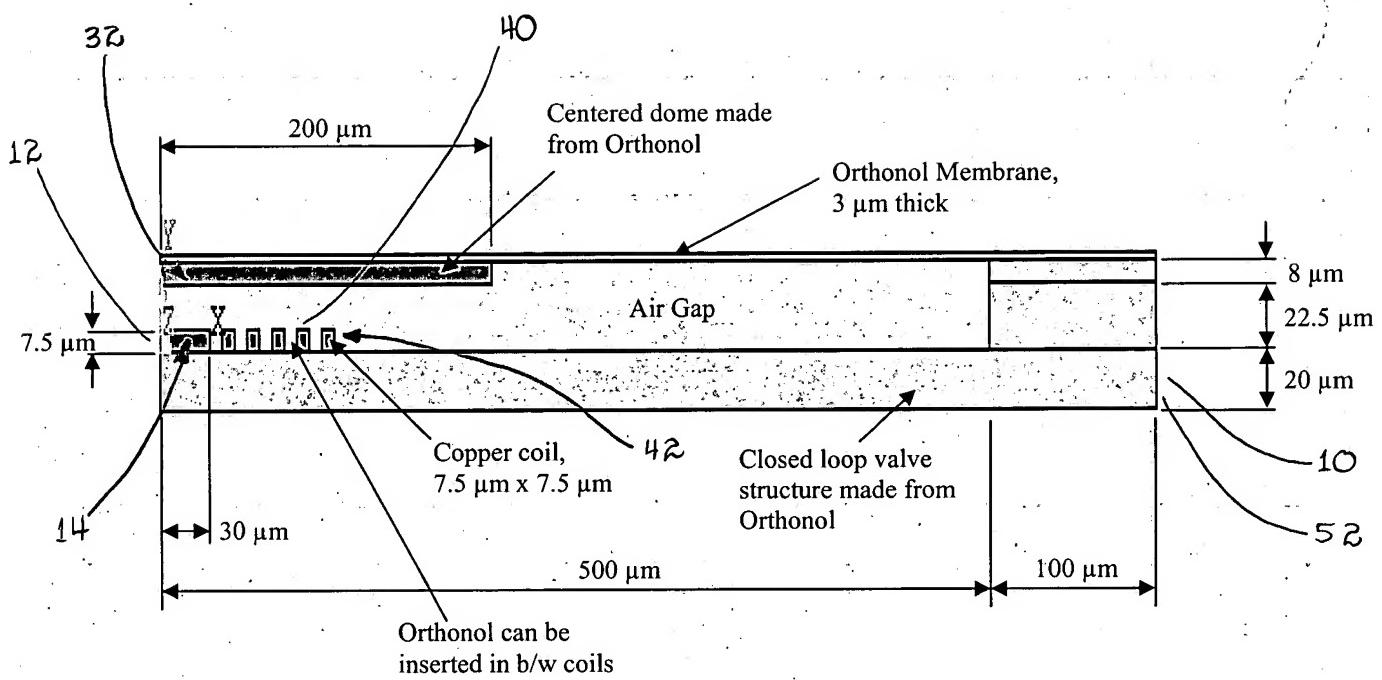


FIG. 6

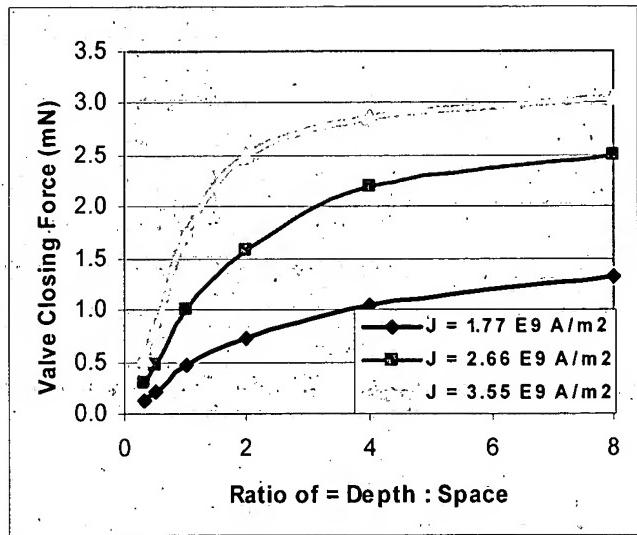


FIG. 7

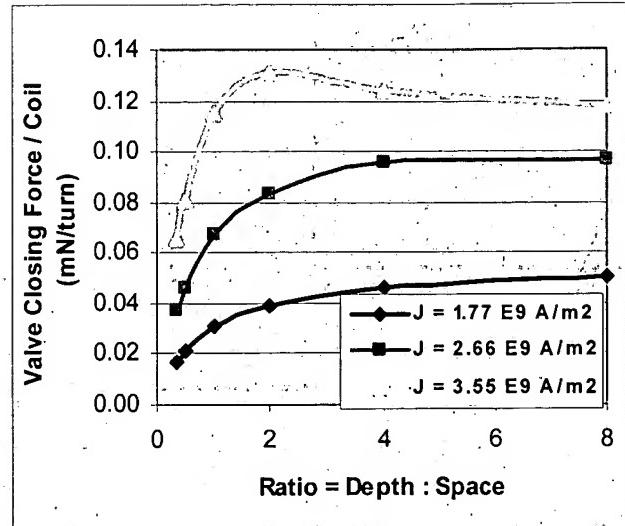


FIG. 8

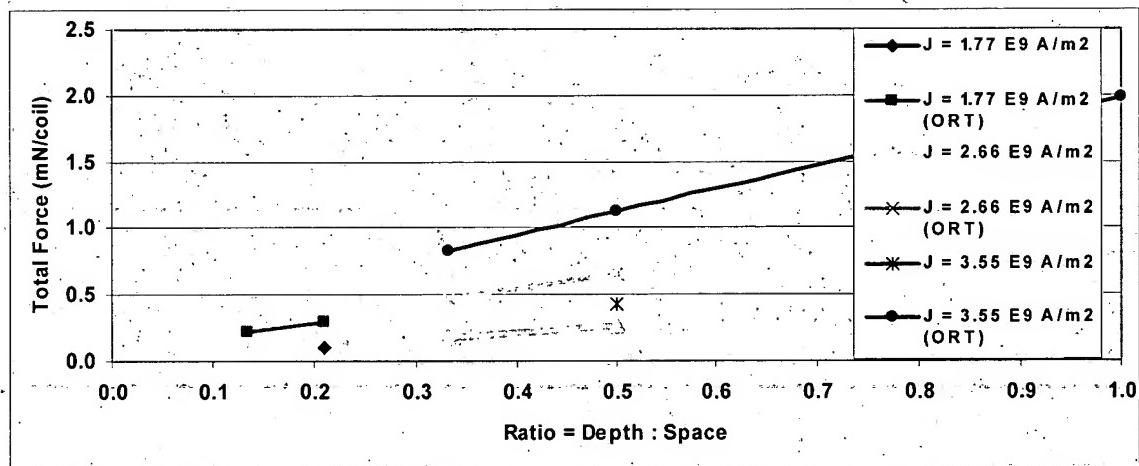


FIG. 9

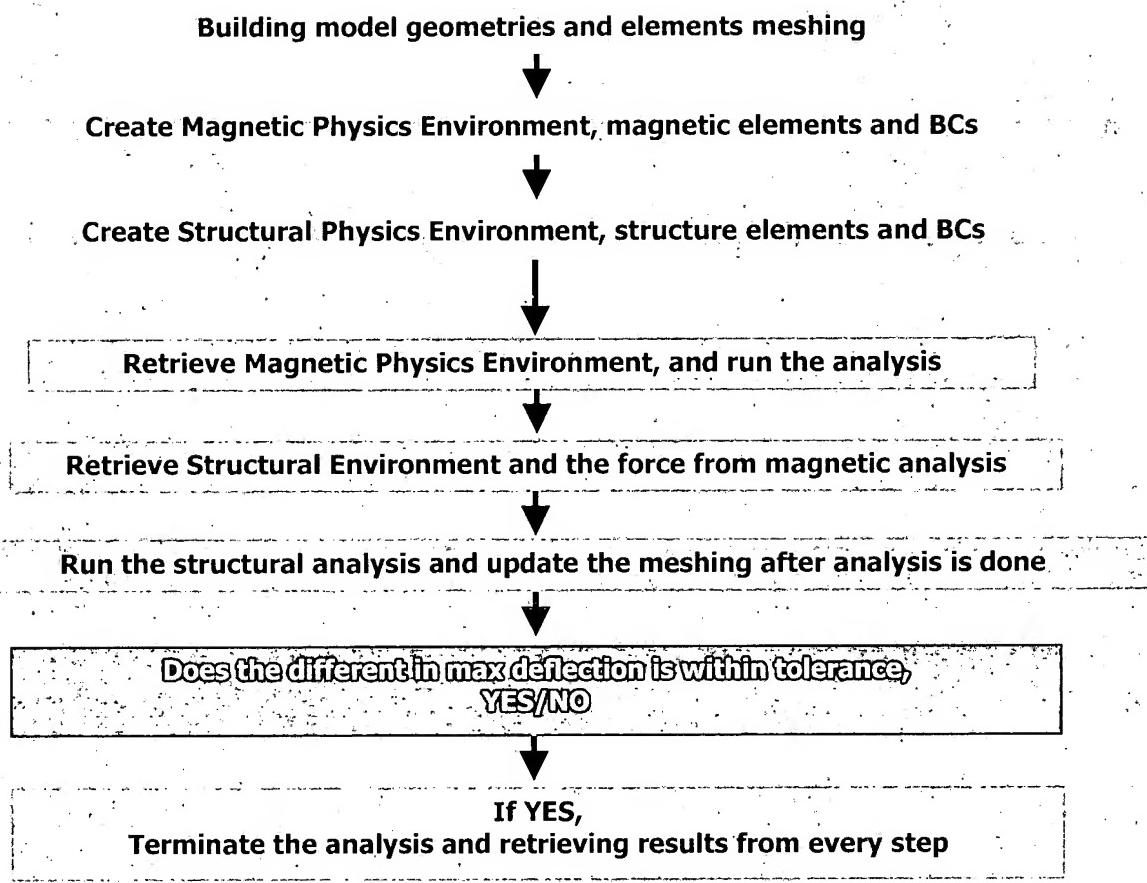


FIG. 10

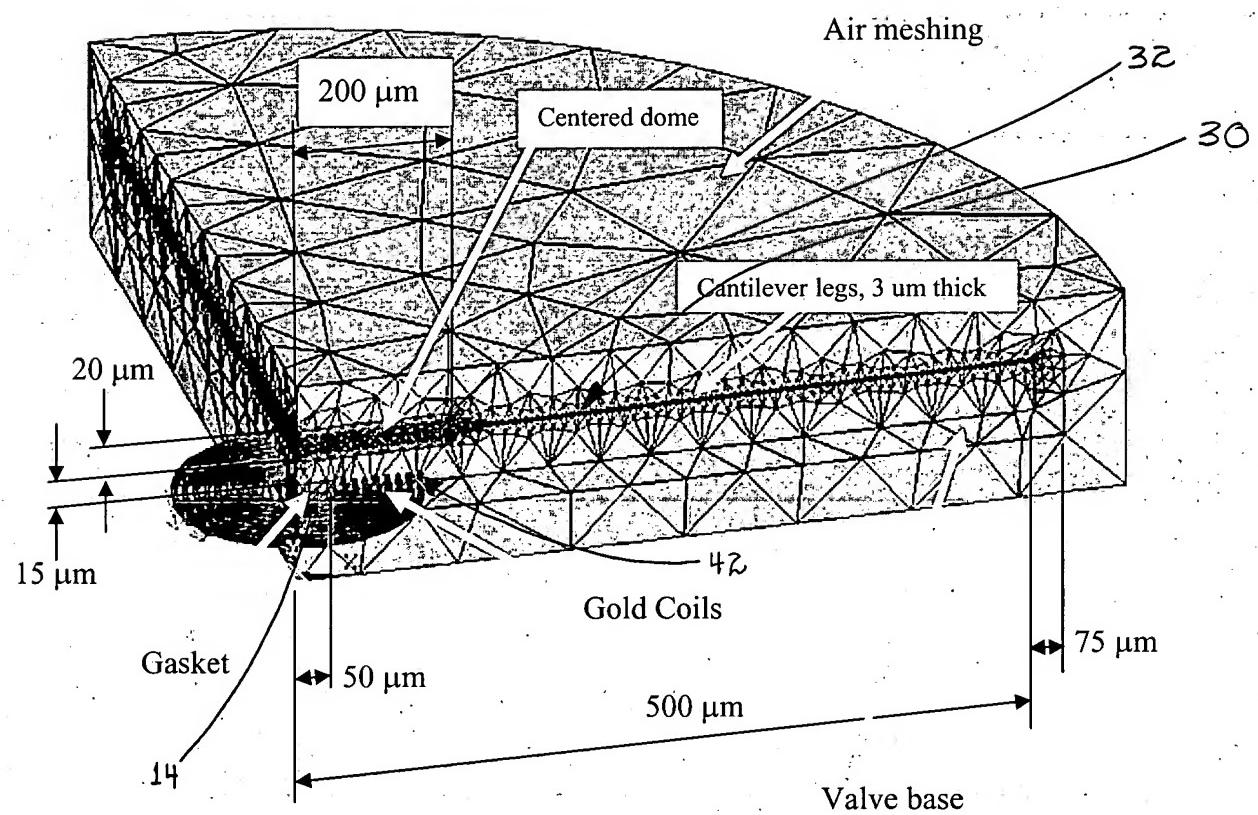
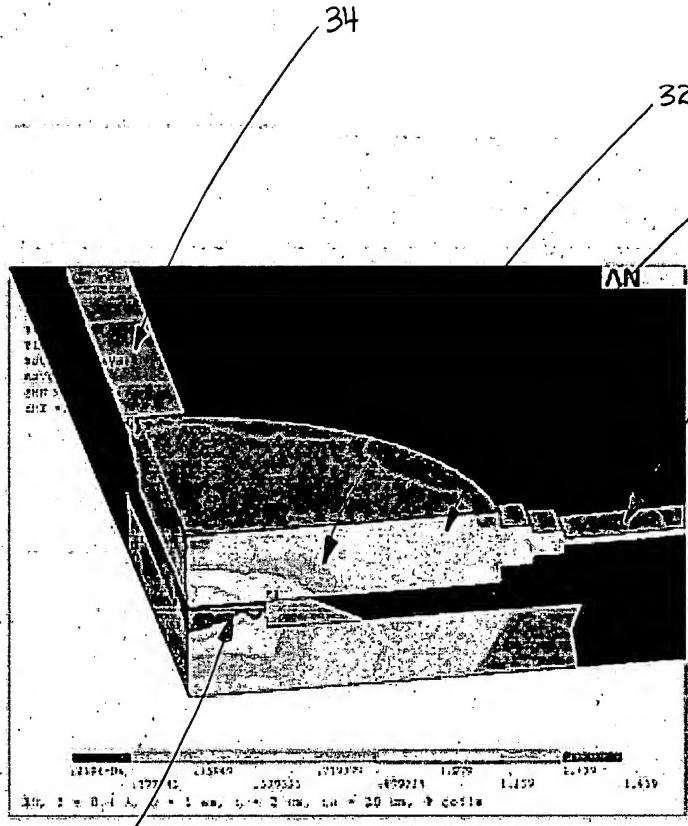


FIG. 11



14

FIG.12(a)

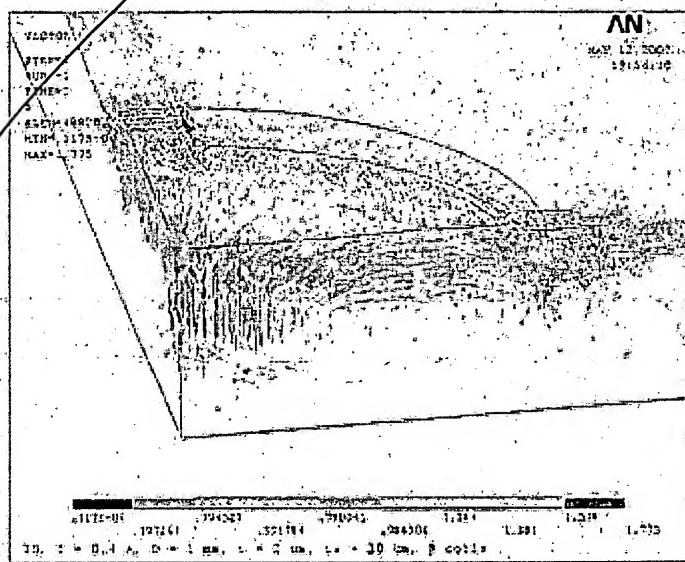
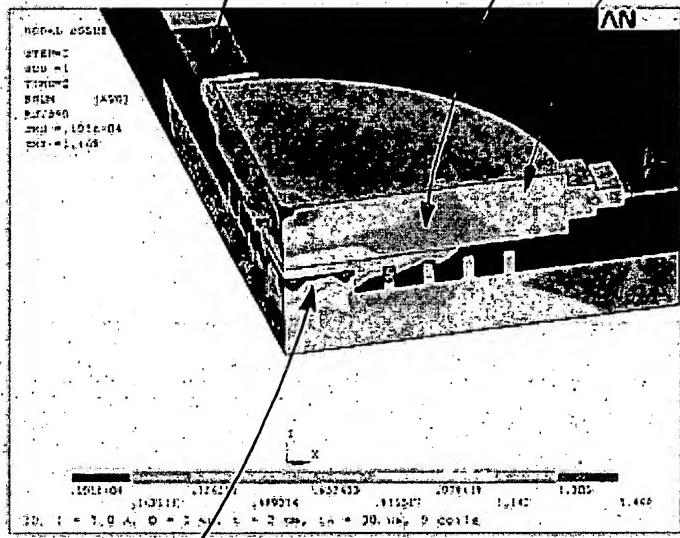


FIG. 12(b)



14

FIG. 13(a)

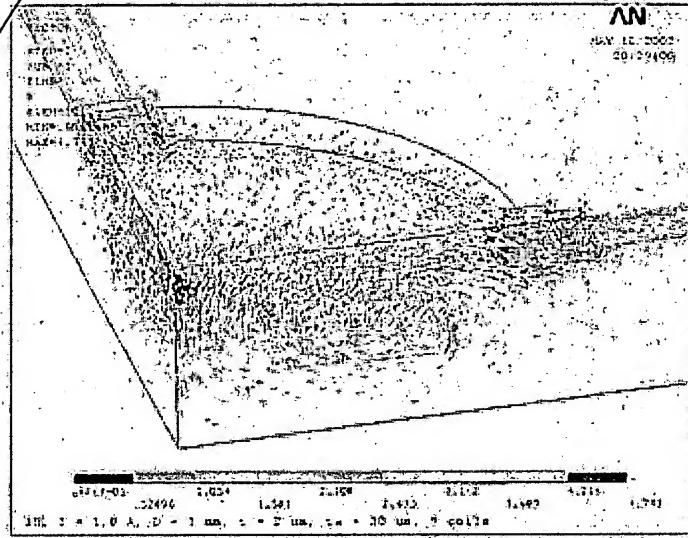
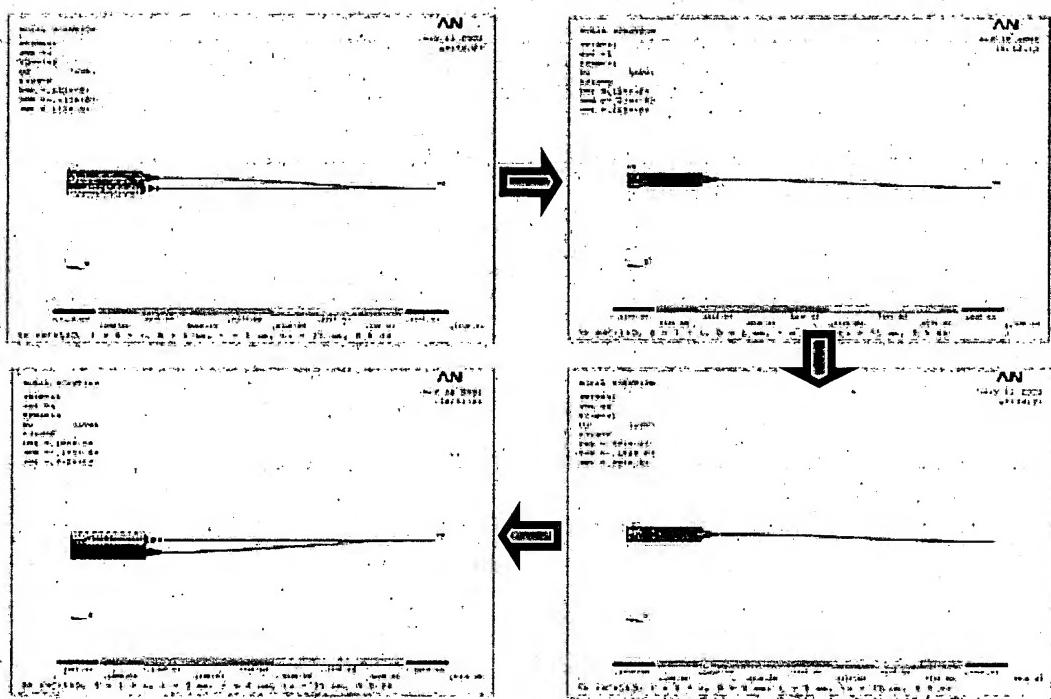
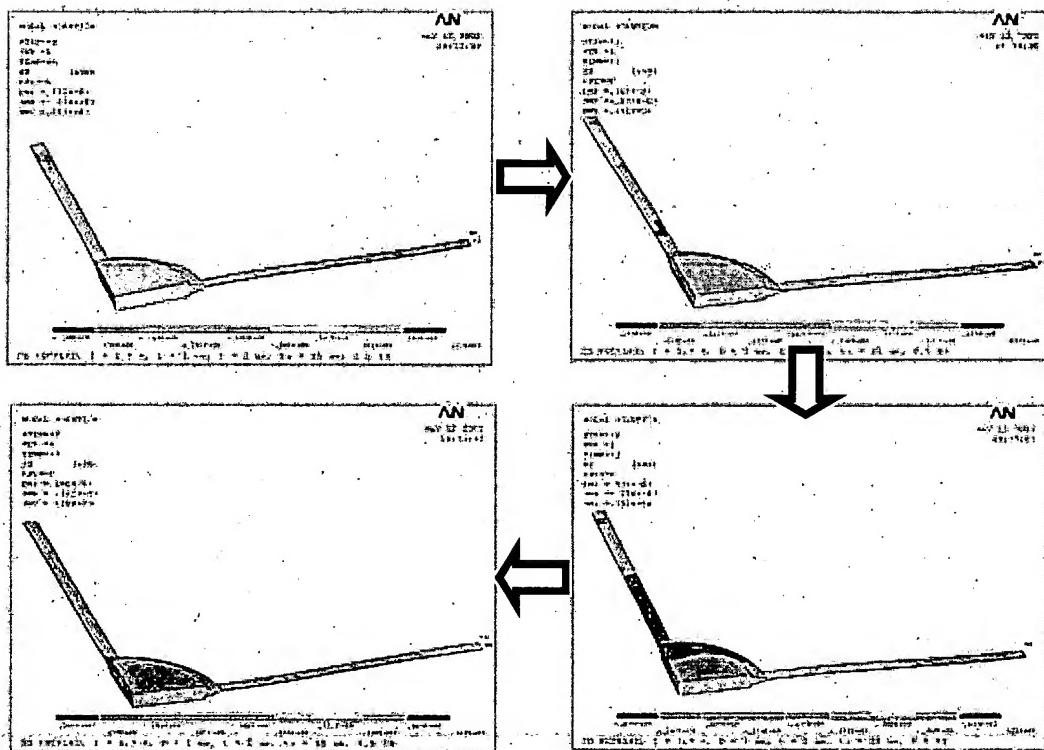


FIG. 13(b)



FIGS. 14(a - d)



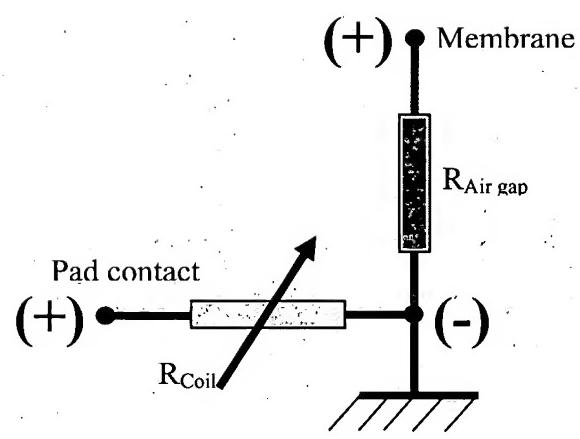


FIG. 16

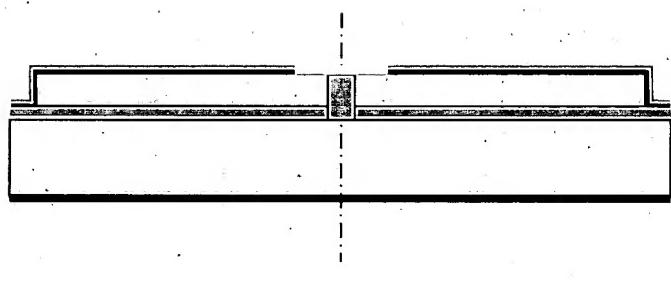


FIG. 17a

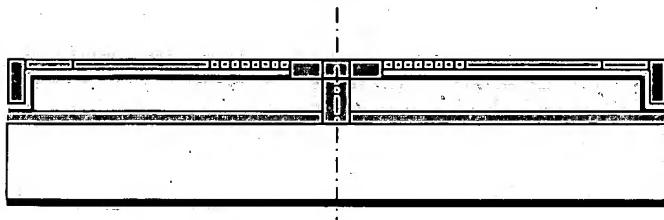


FIG. 17b

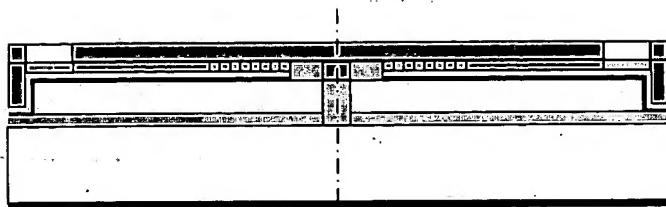


FIG. 17c

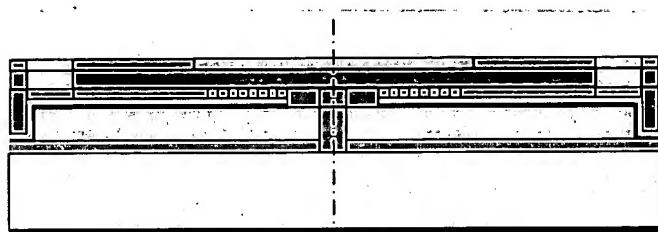


FIG. 17d

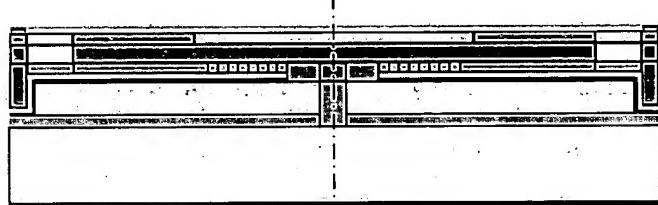


FIG. 17e

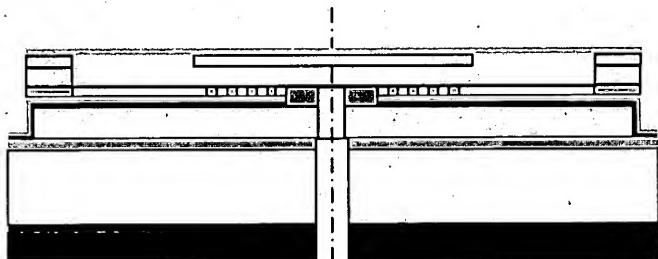


FIG. 17f

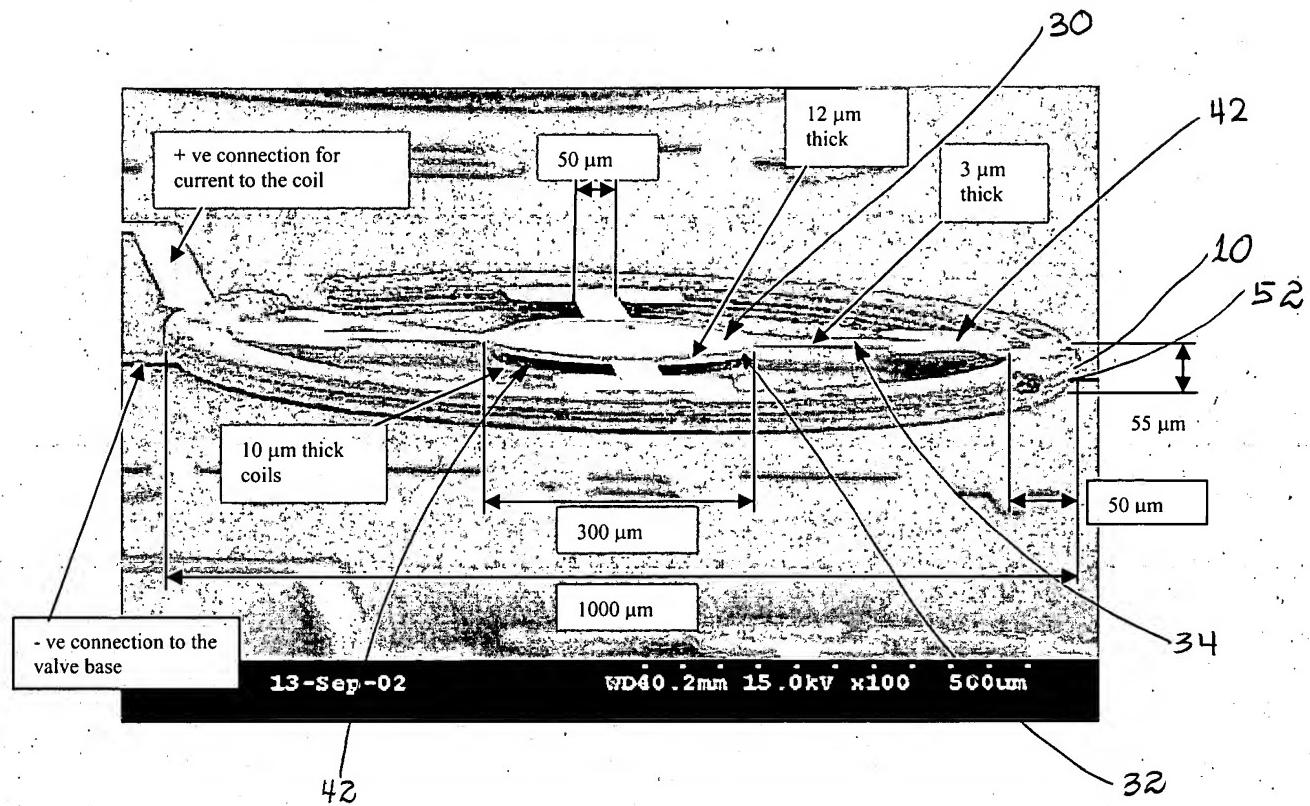


FIG. 18

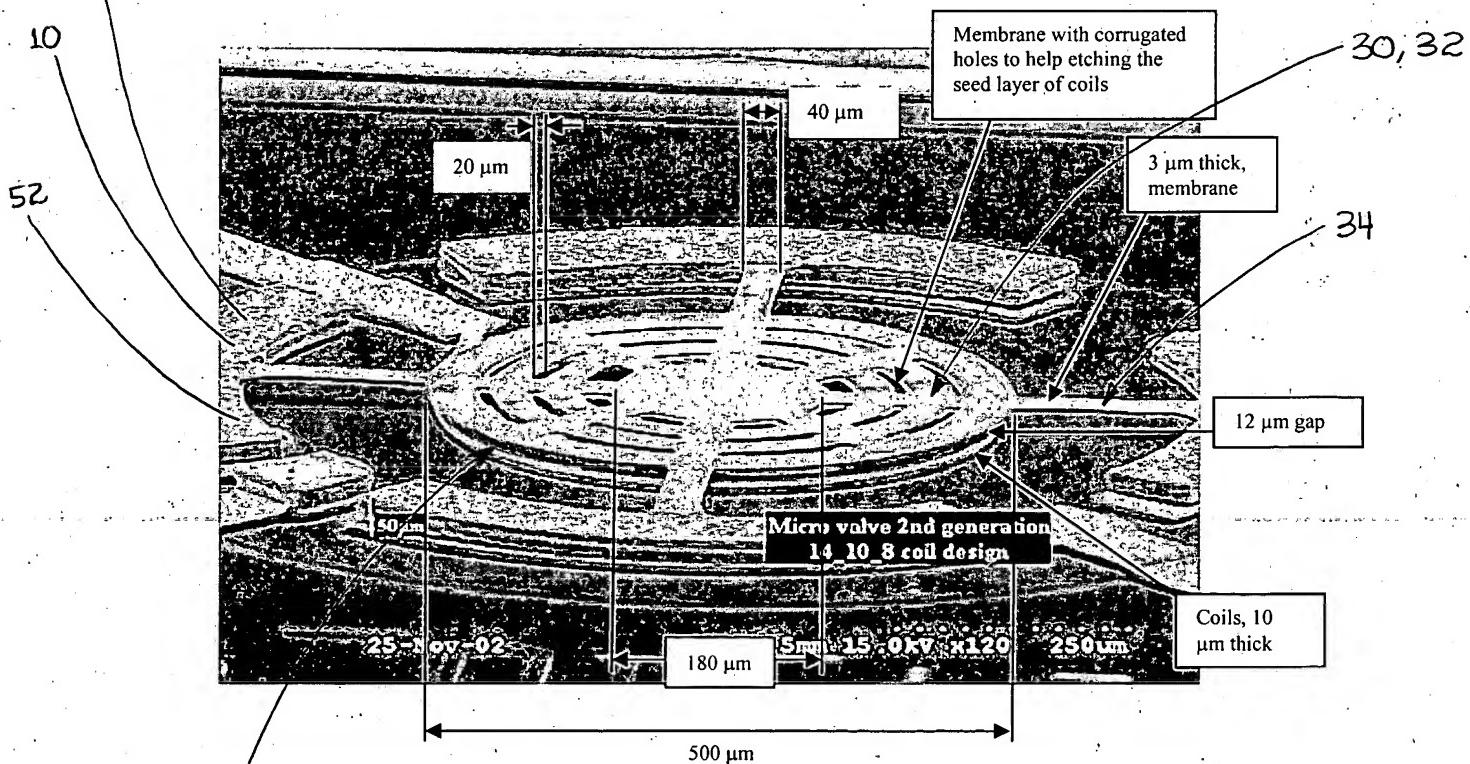


FIG. 19

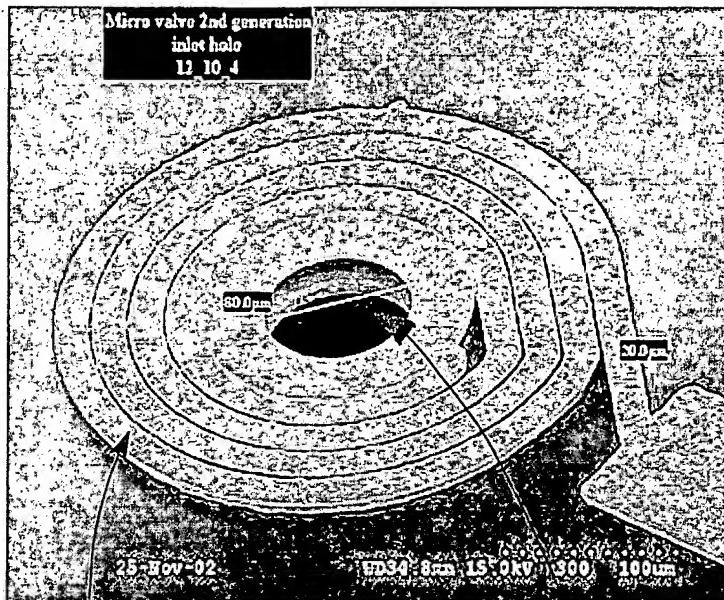


FIG. 20

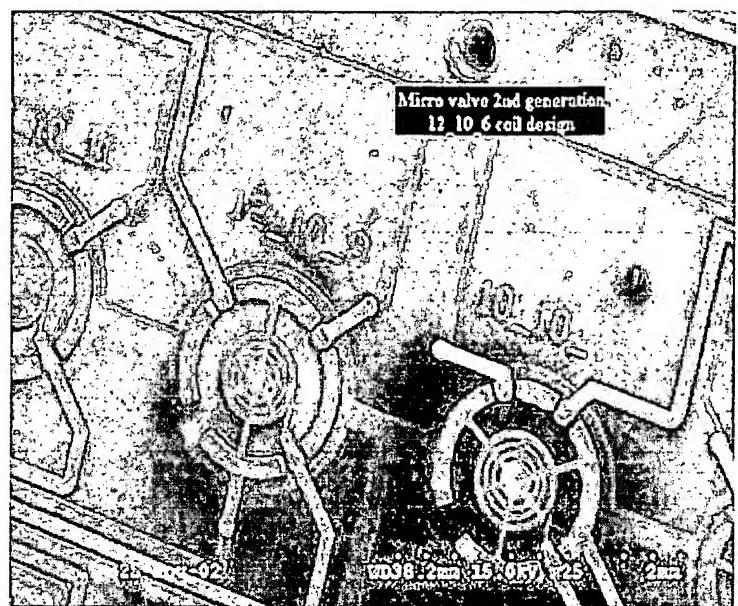


FIG. 21

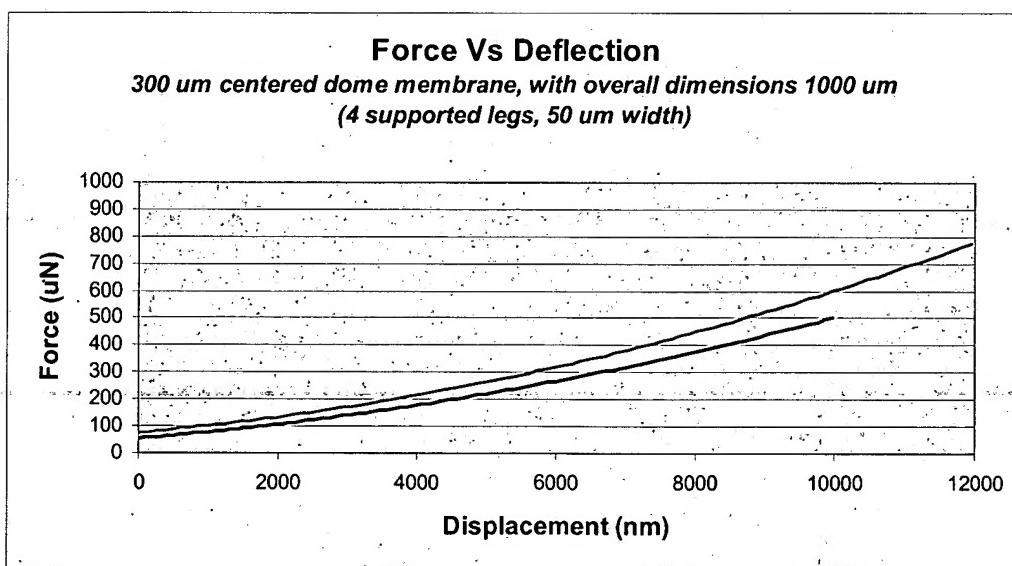


FIG. 22

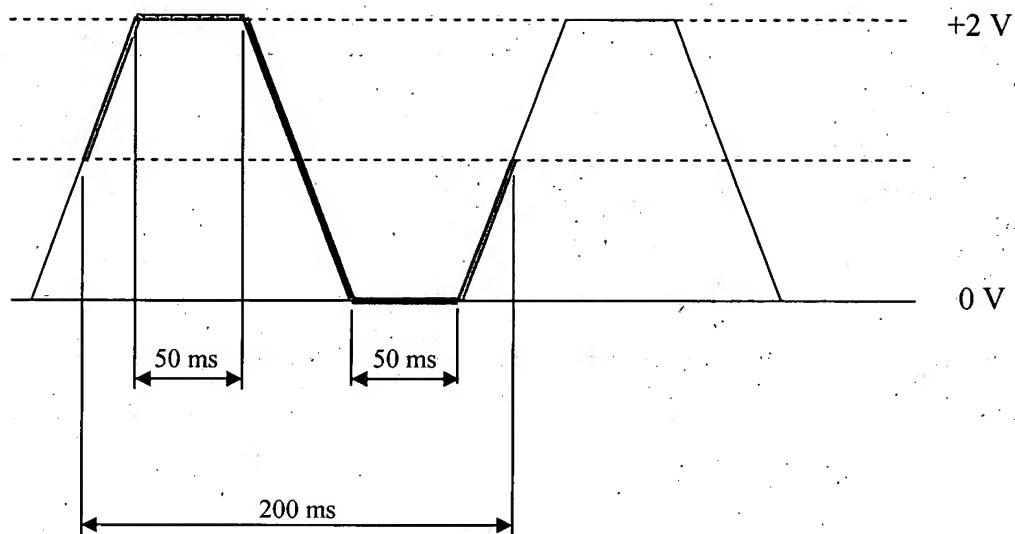


FIG. 23

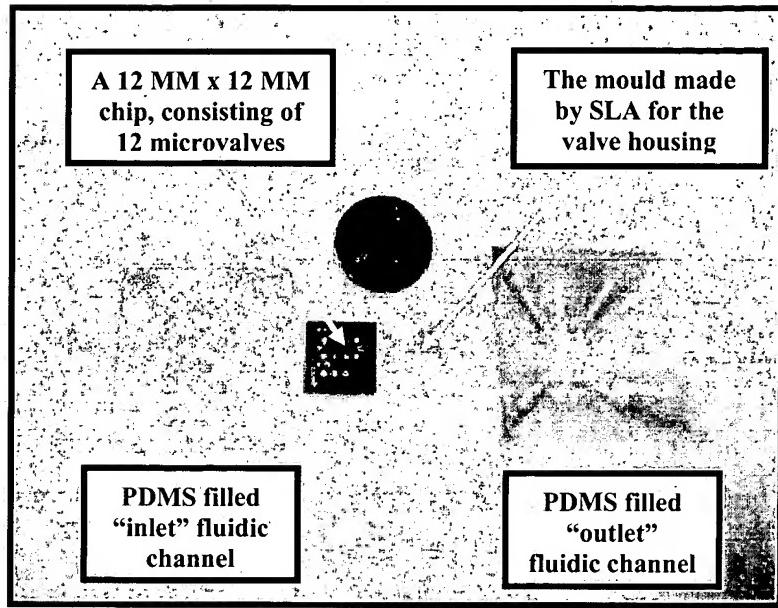


FIG. 24(a)

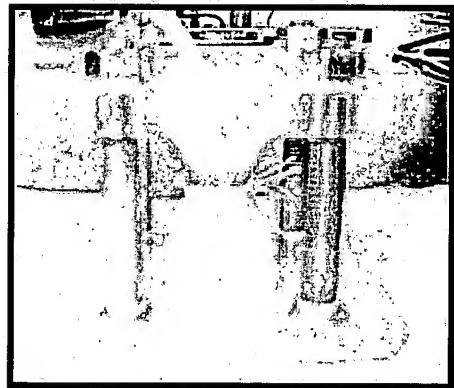


FIG. 24(b)

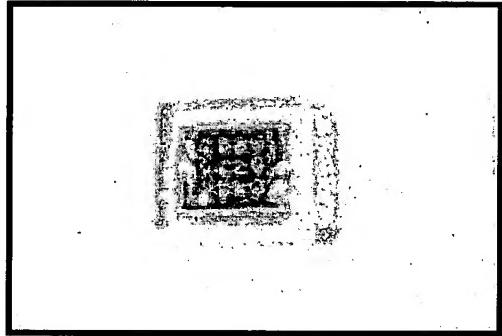


FIG. 24(c)

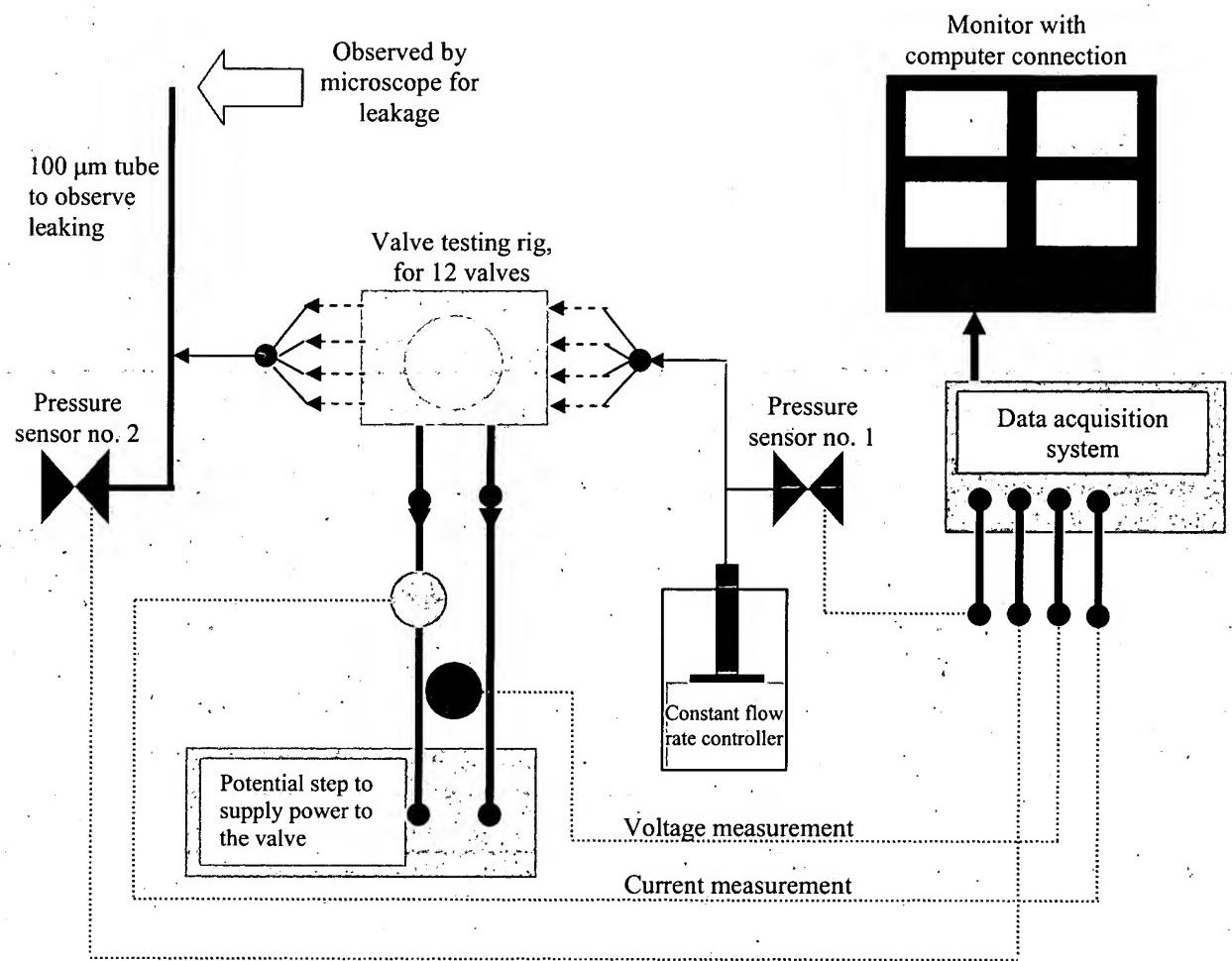


FIG. 25

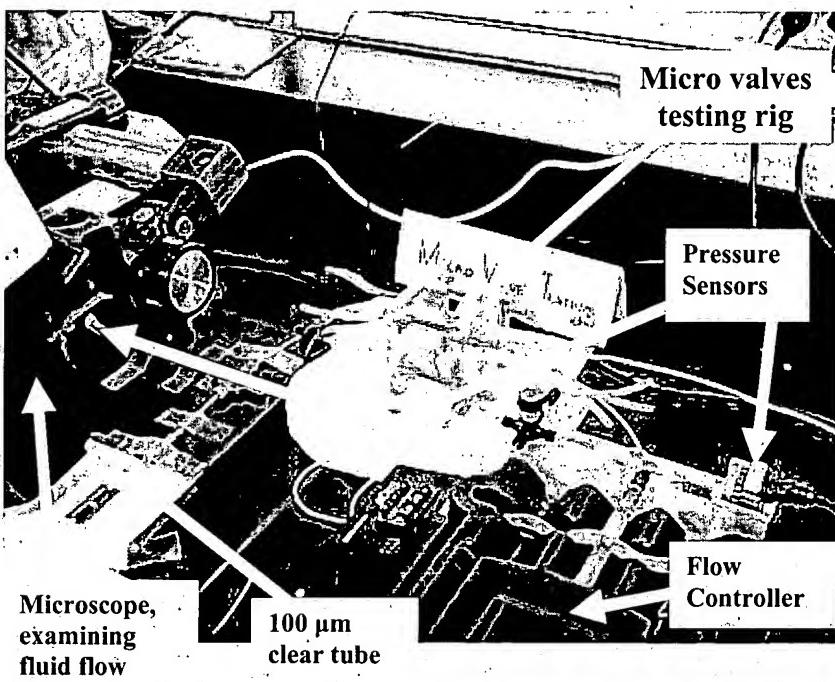
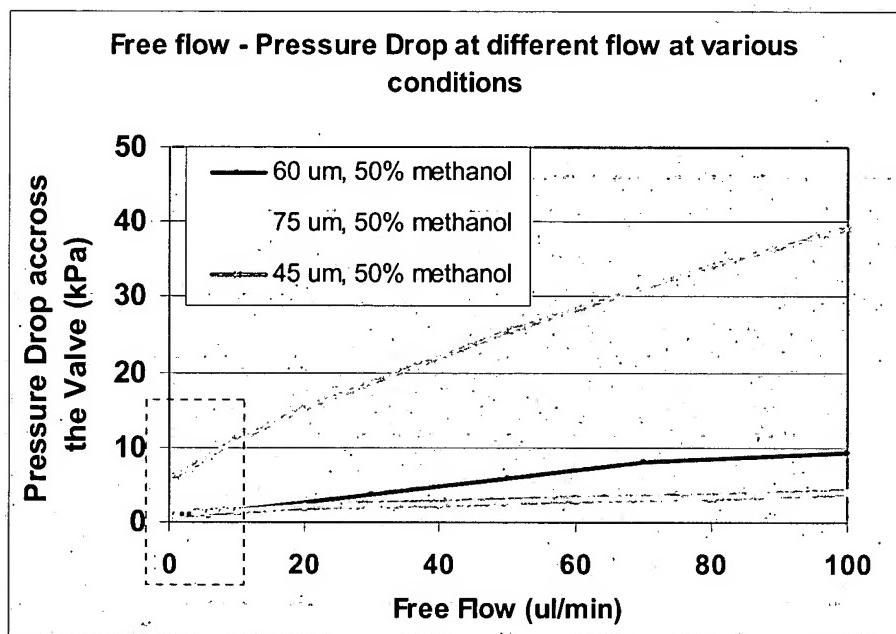


FIG. 26



Linear relationship here

FIG. 27

Testing in the valve actuation; The free flow is 1 ul/min at pressure drop is 0.65 kPa; Corrugated Membrane with 4 parallel-spring-legs; Orifice diameter is 60 um; Coil resistance: 3.1 ohm; Voltage applied for actuation: 1.96 V.

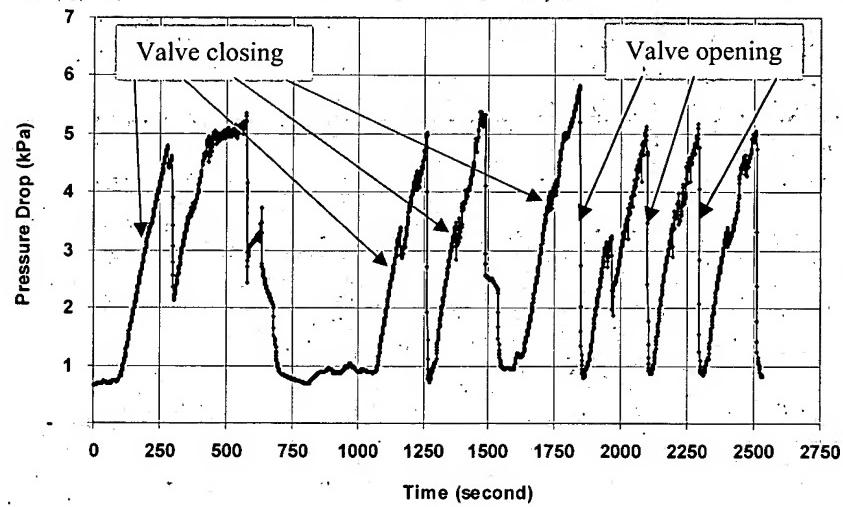


FIG. 28

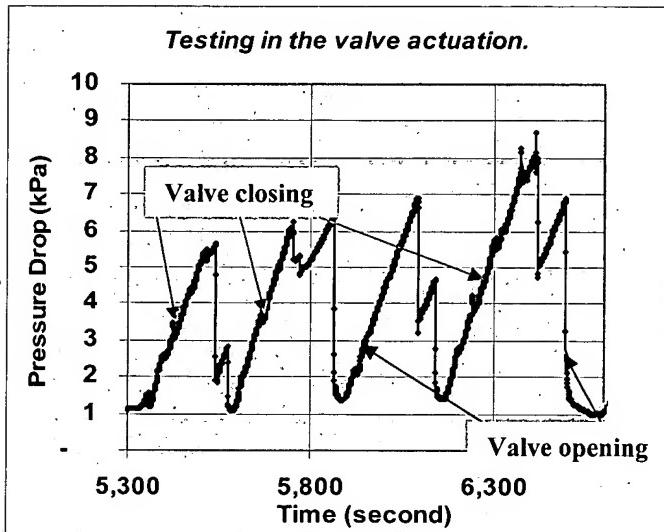


FIG. 29

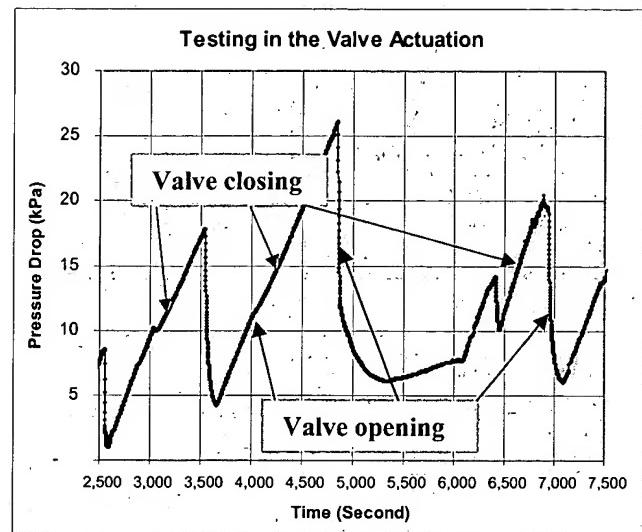


FIG. 30

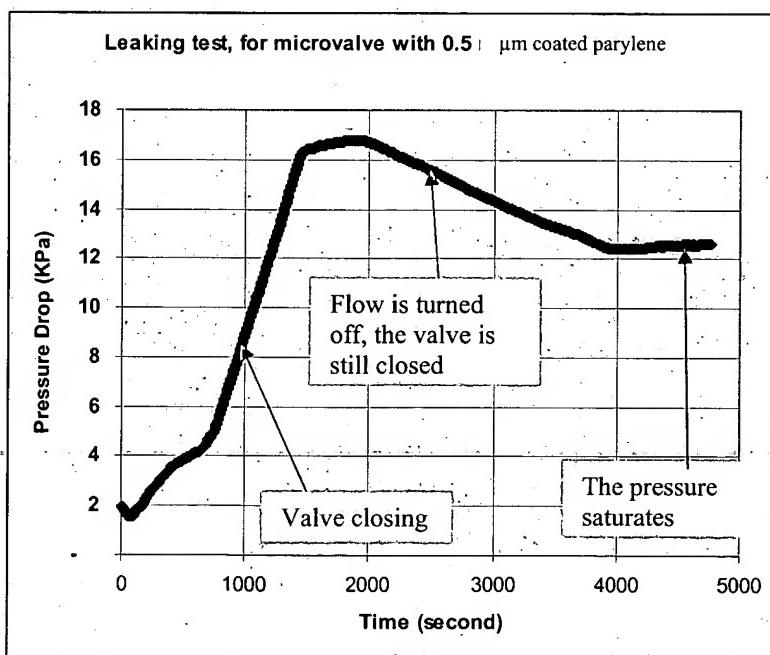


FIG. 31

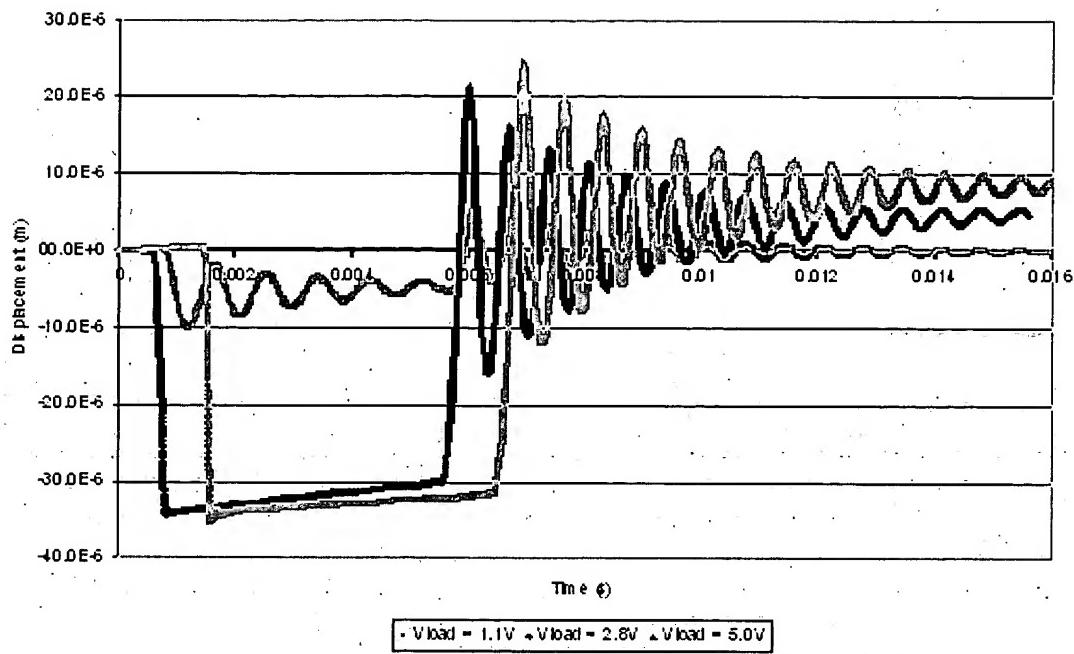


FIG. 32

Sample of responses for varying Vload values with fb = 1kHz

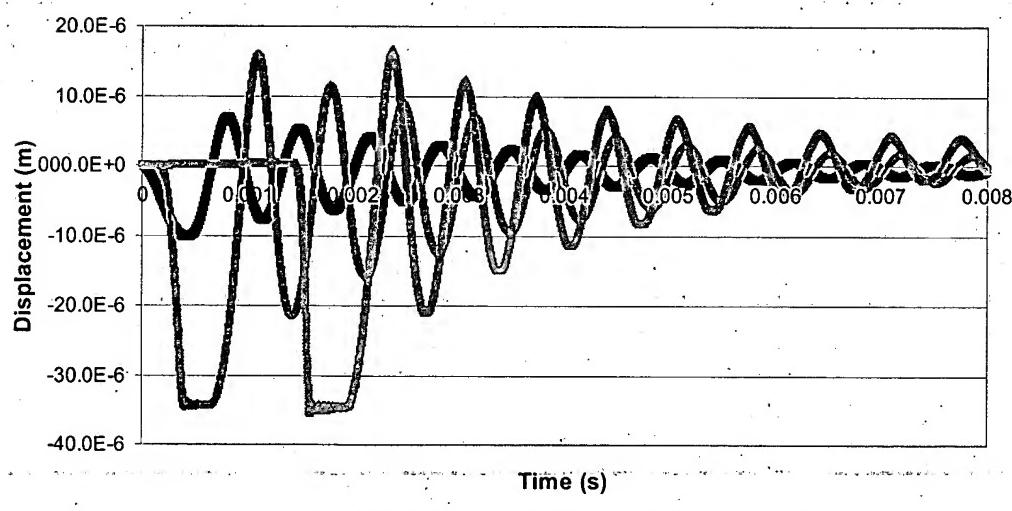


FIG. 33

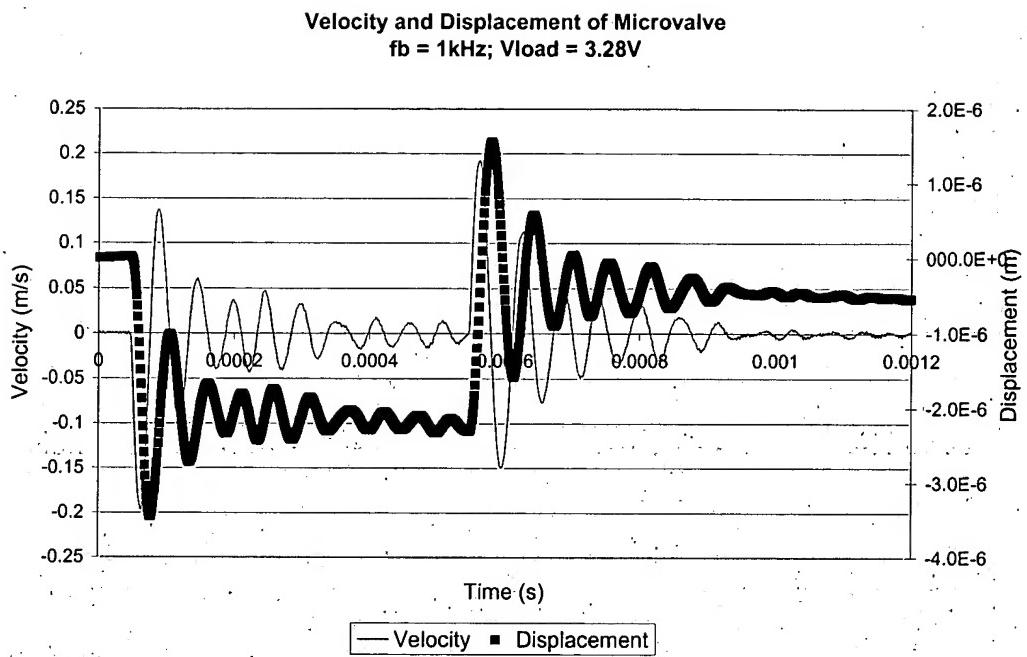


FIG. 34

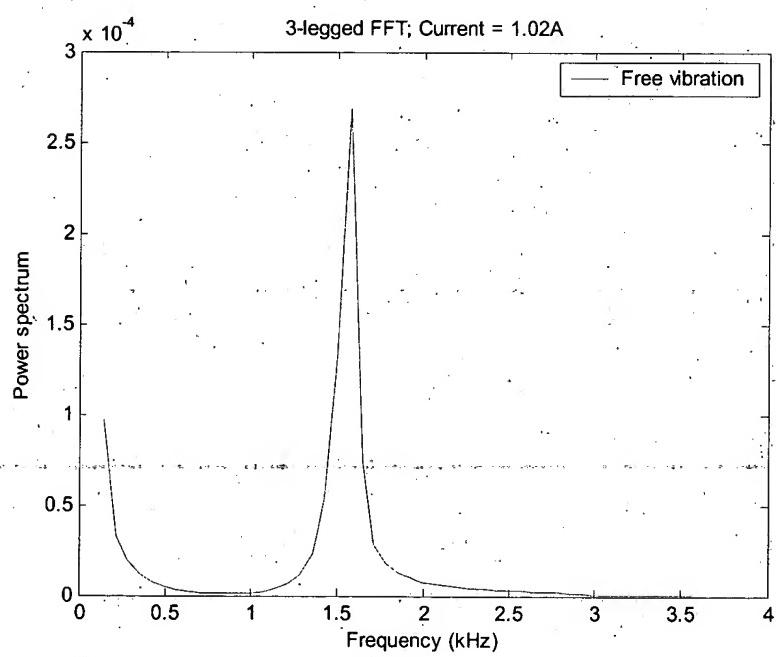


FIG. 35

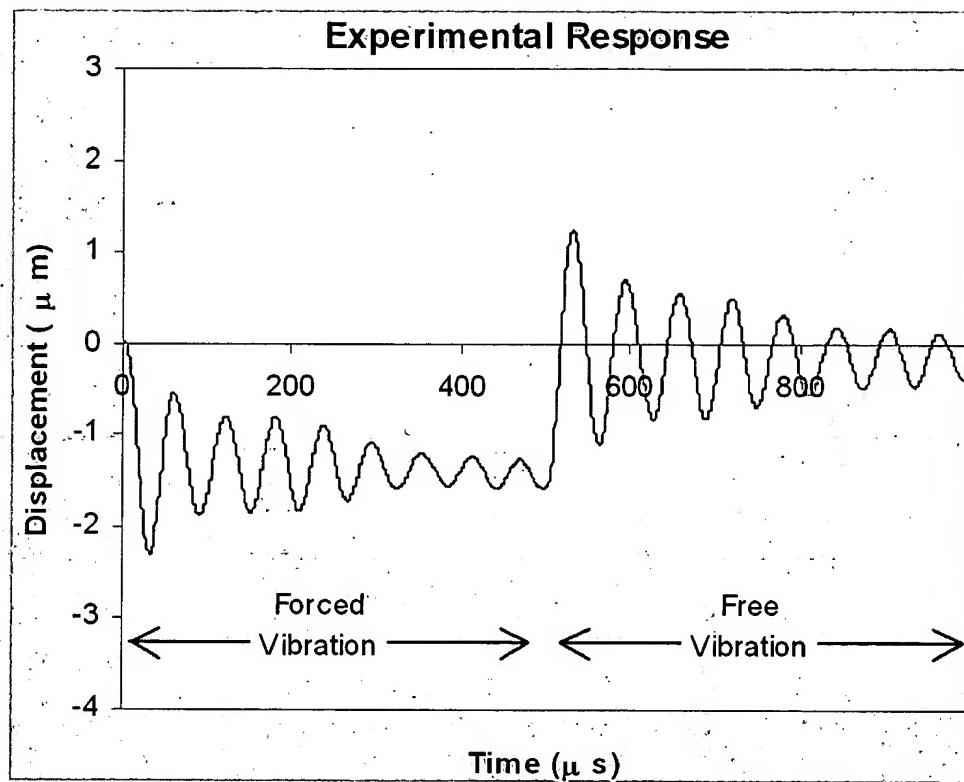


FIG. 36

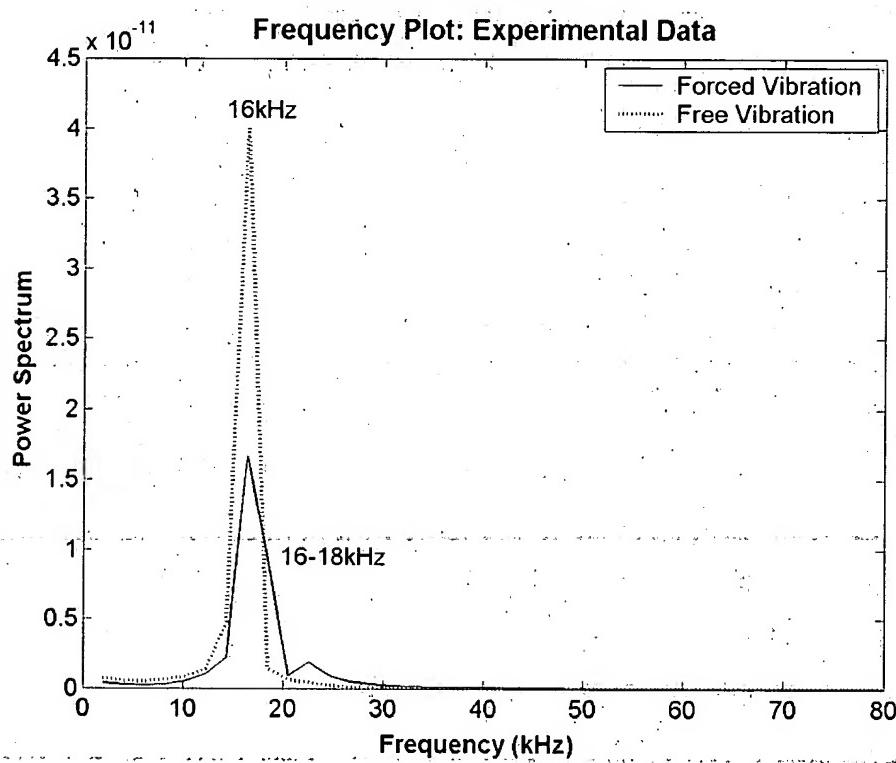


FIG. 37

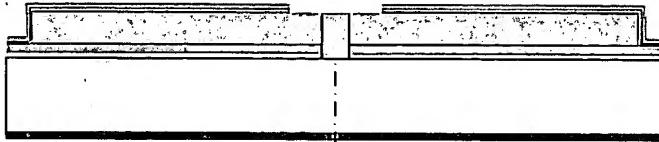


FIG. 38a

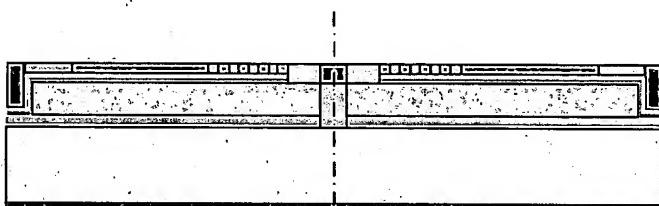


FIG. 38b

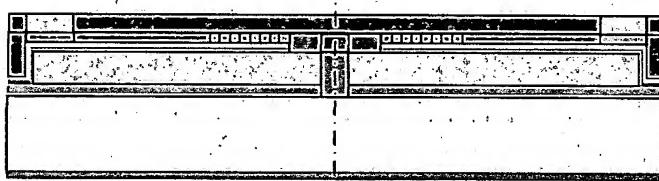


FIG. 38c

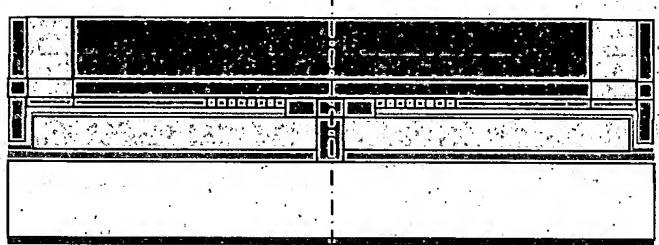


FIG. 38d

Legend:

NiFe

SiO_2

Cu

PR, AZ 4620

Permanent Magnet

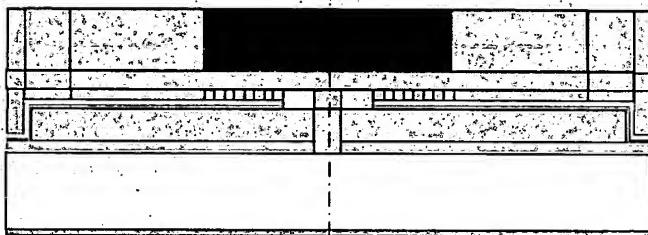


FIG. 38e

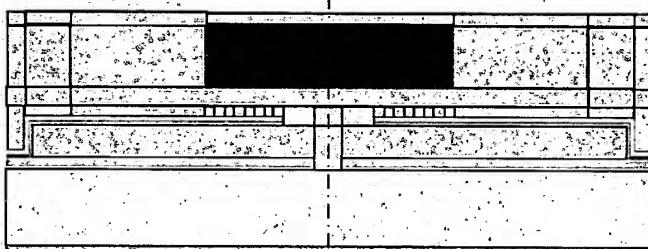


FIG. 38f

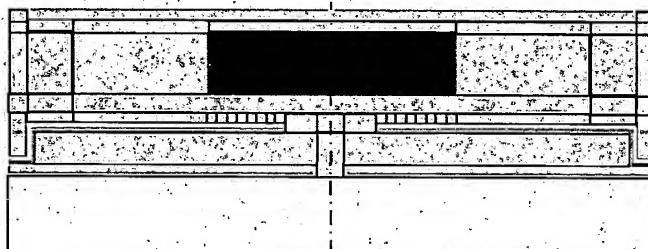


FIG. 38g

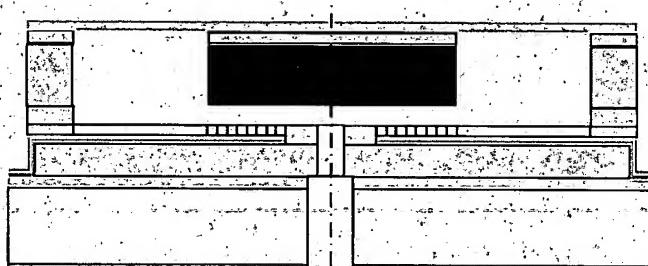


FIG. 38h

Legend:

NiFe

SiO₂

Cu

PR, AZ 4620

Permanent Magnet

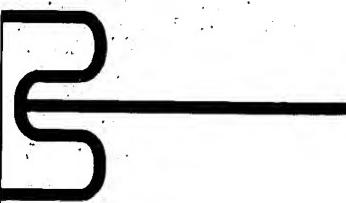


FIG. 39a



FIG. 39b

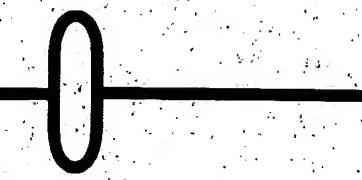


FIG. 39c

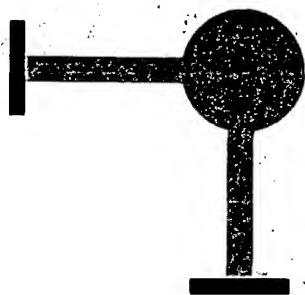


FIG. 40a

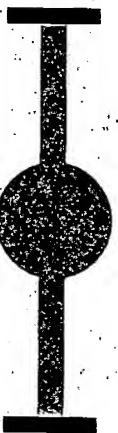


FIG. 40b

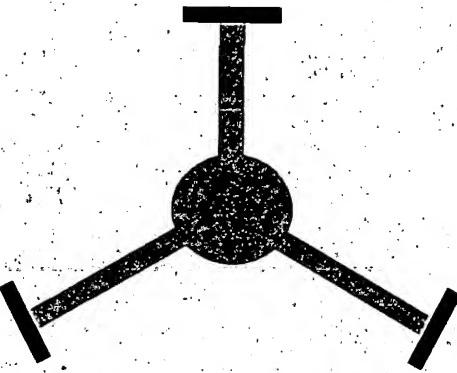


FIG. 40c

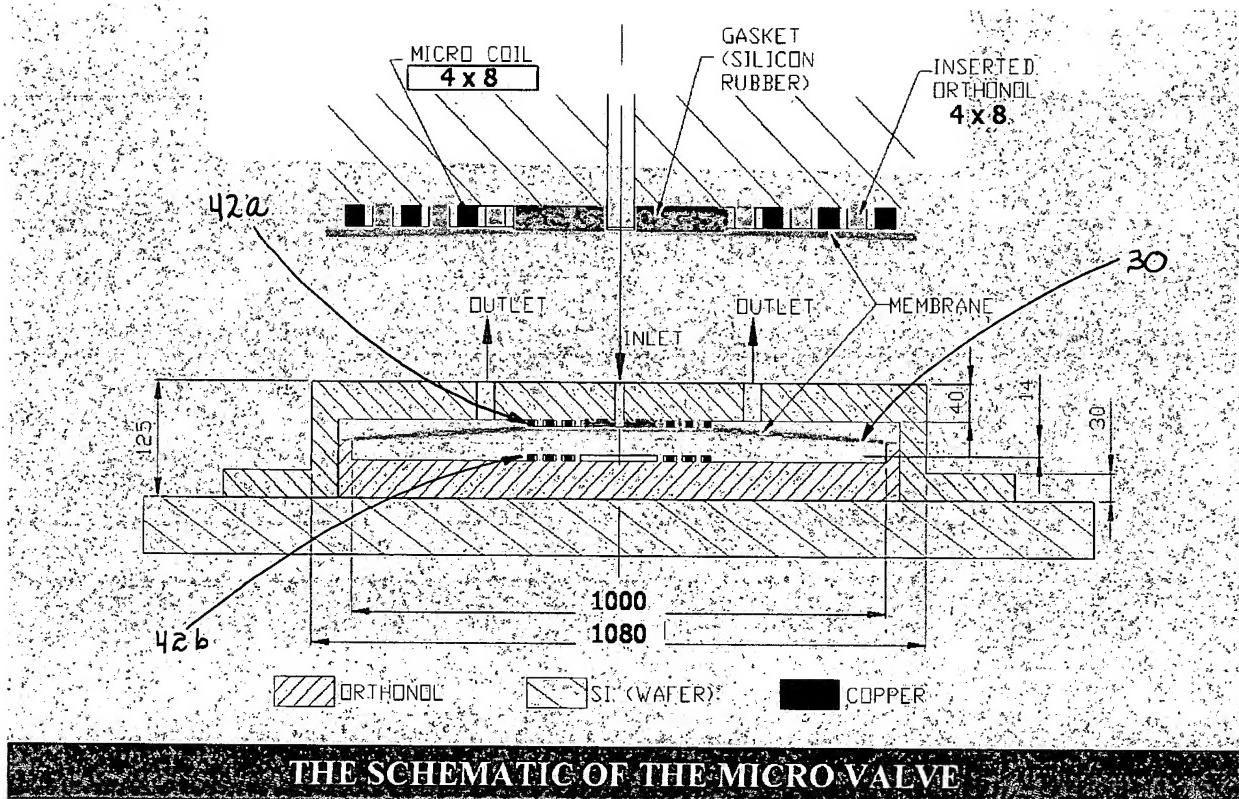
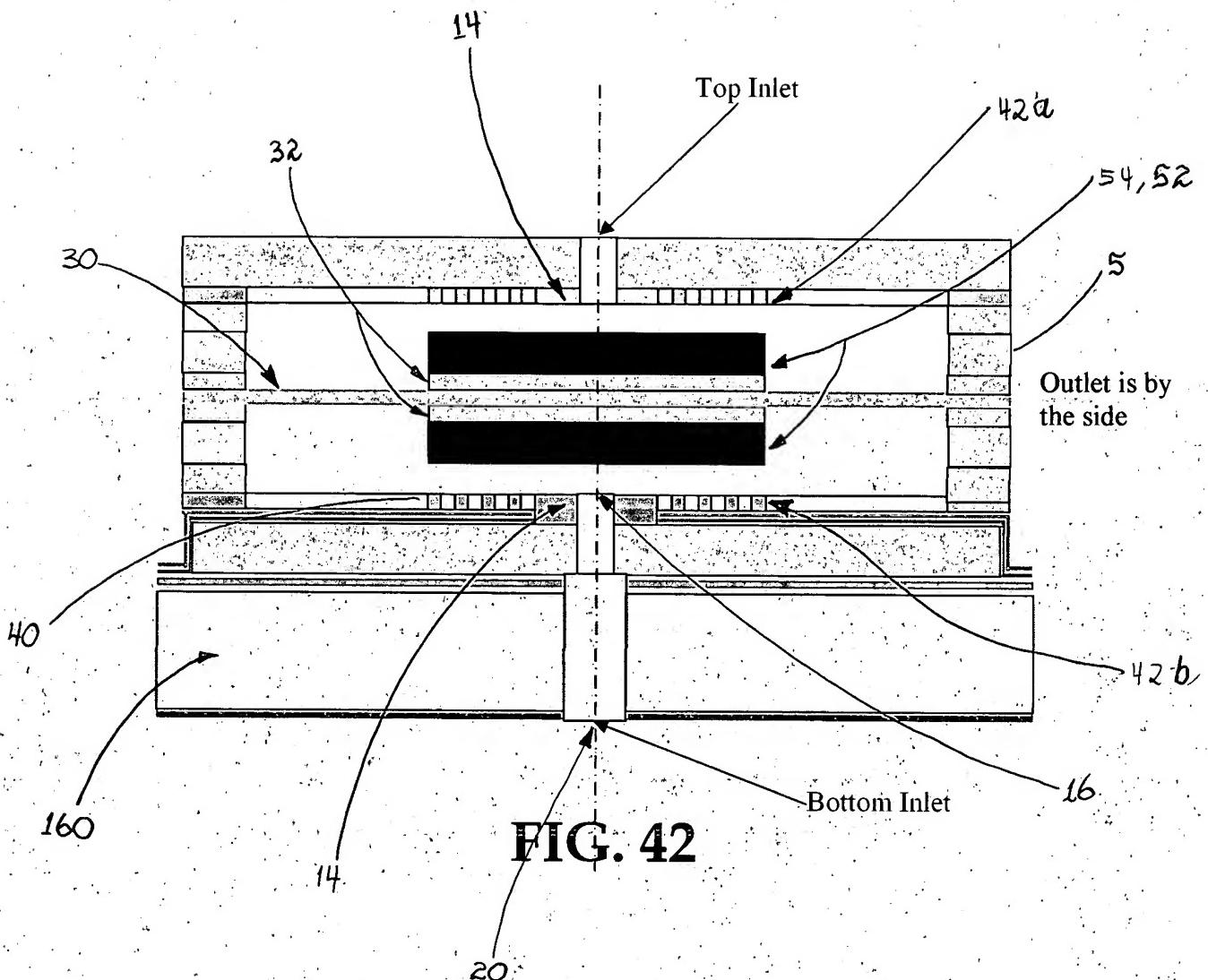


FIG. 41



Outlet is by
the side

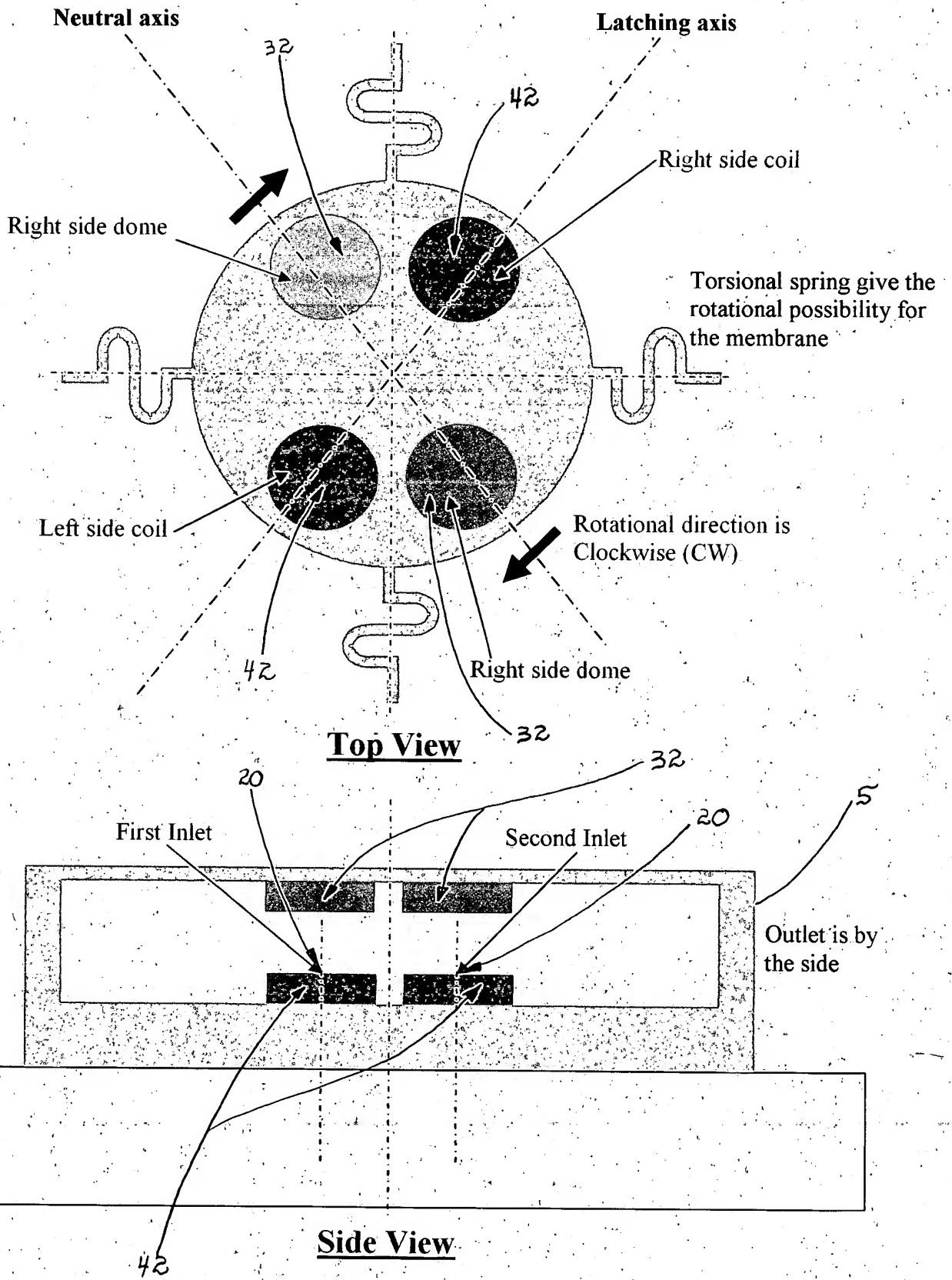


FIG. 43

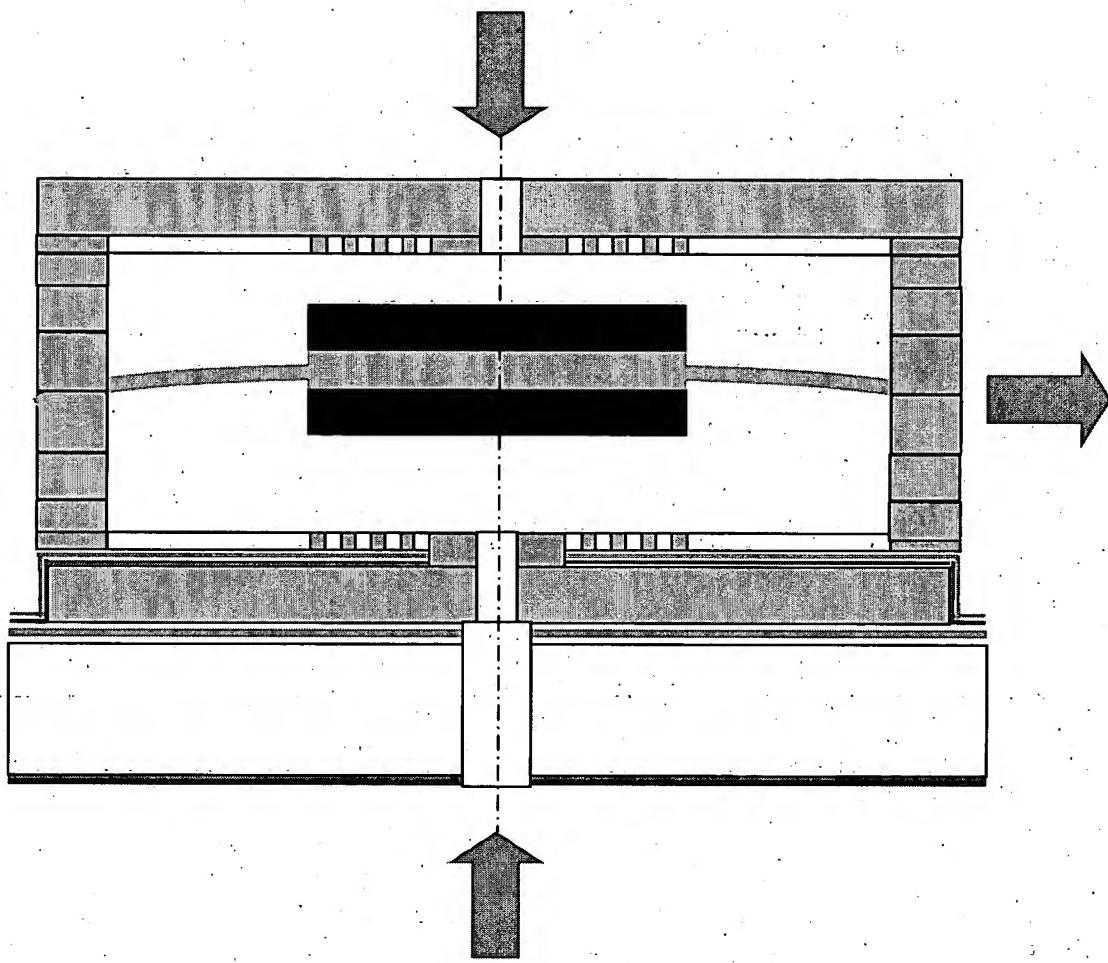


FIG. 44

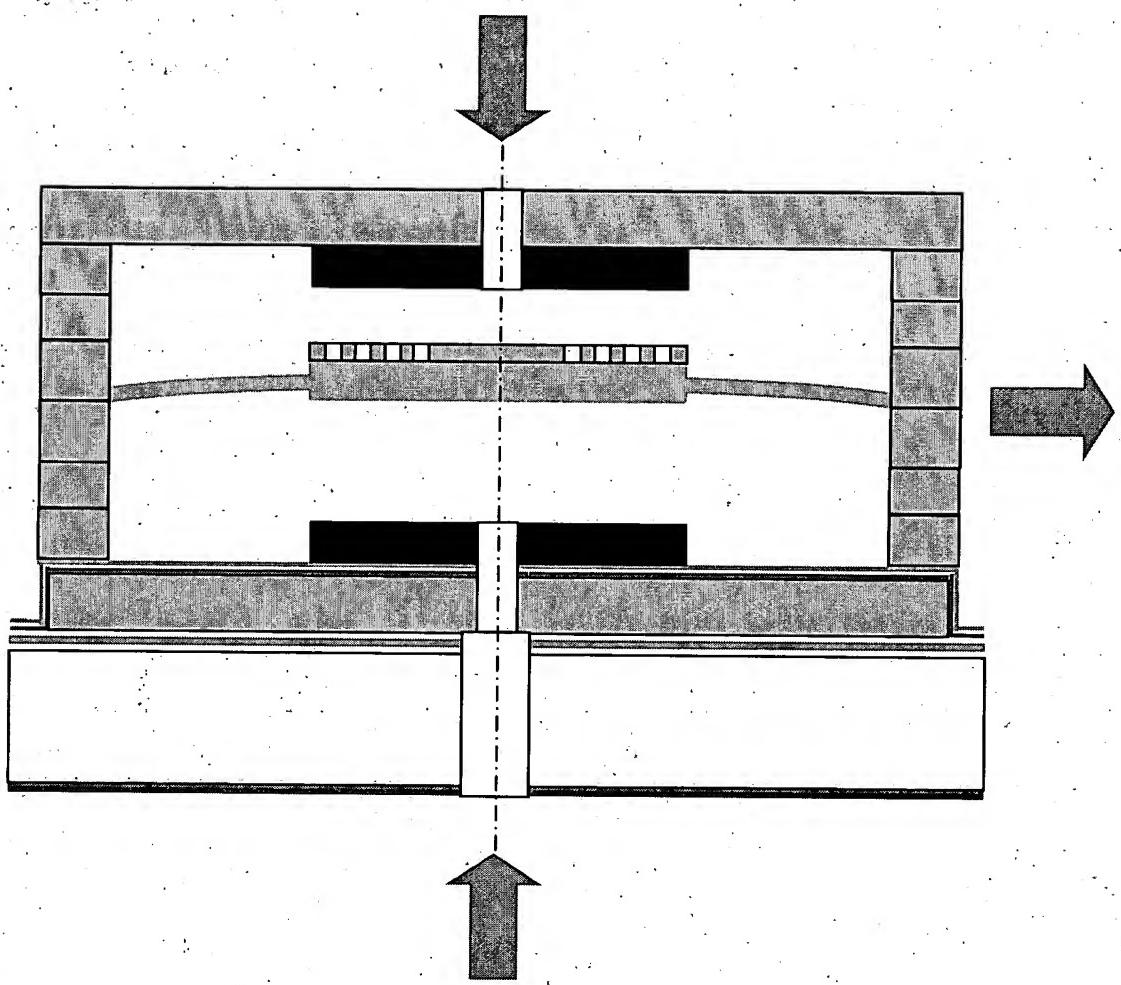


FIG. 45

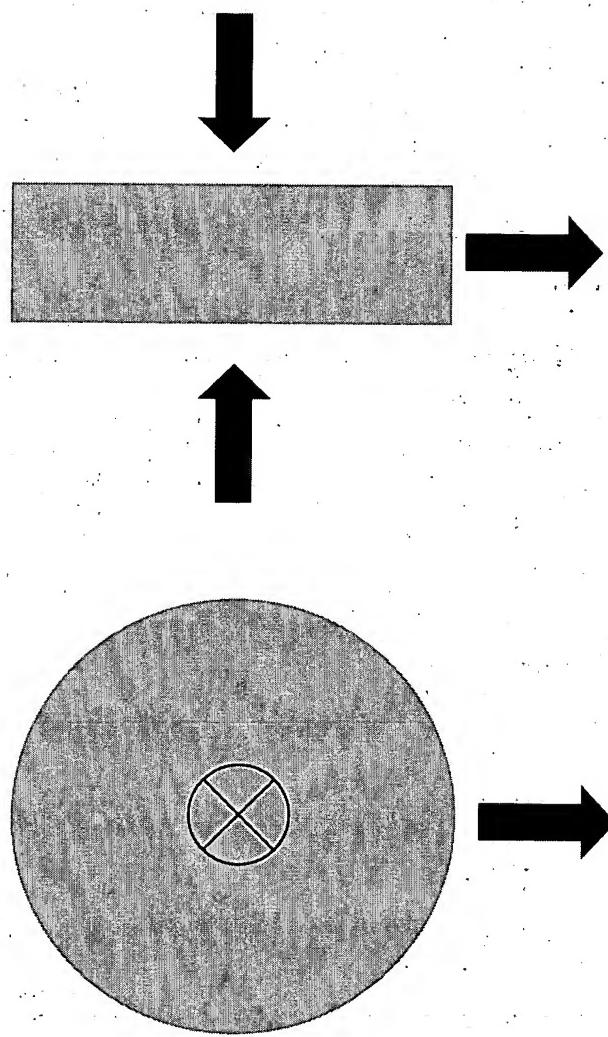


FIG. 46

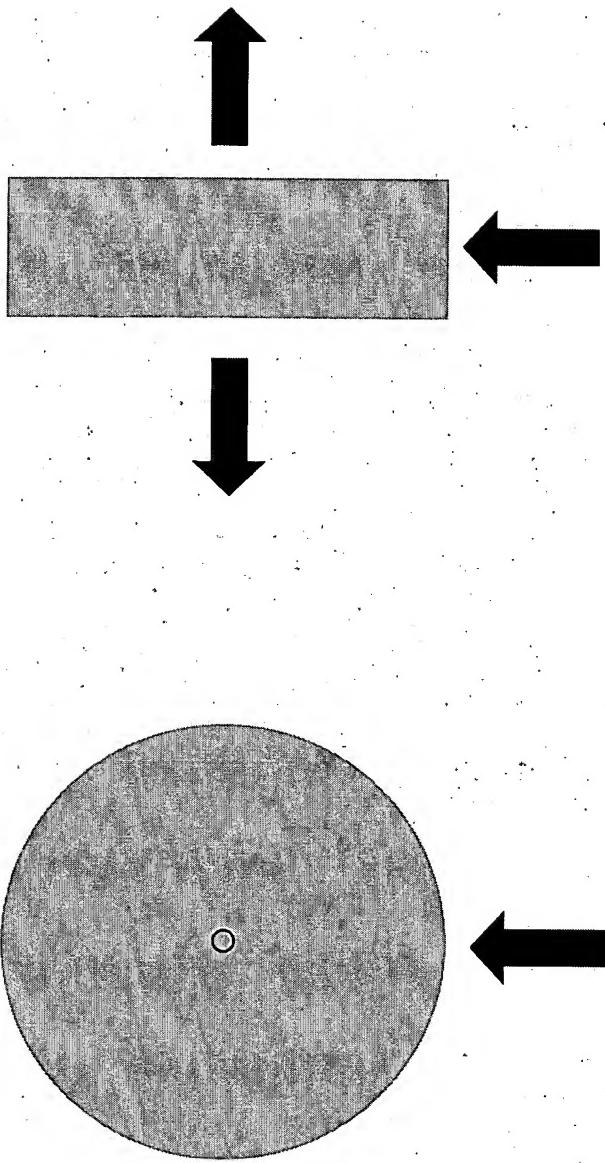


FIG. 47

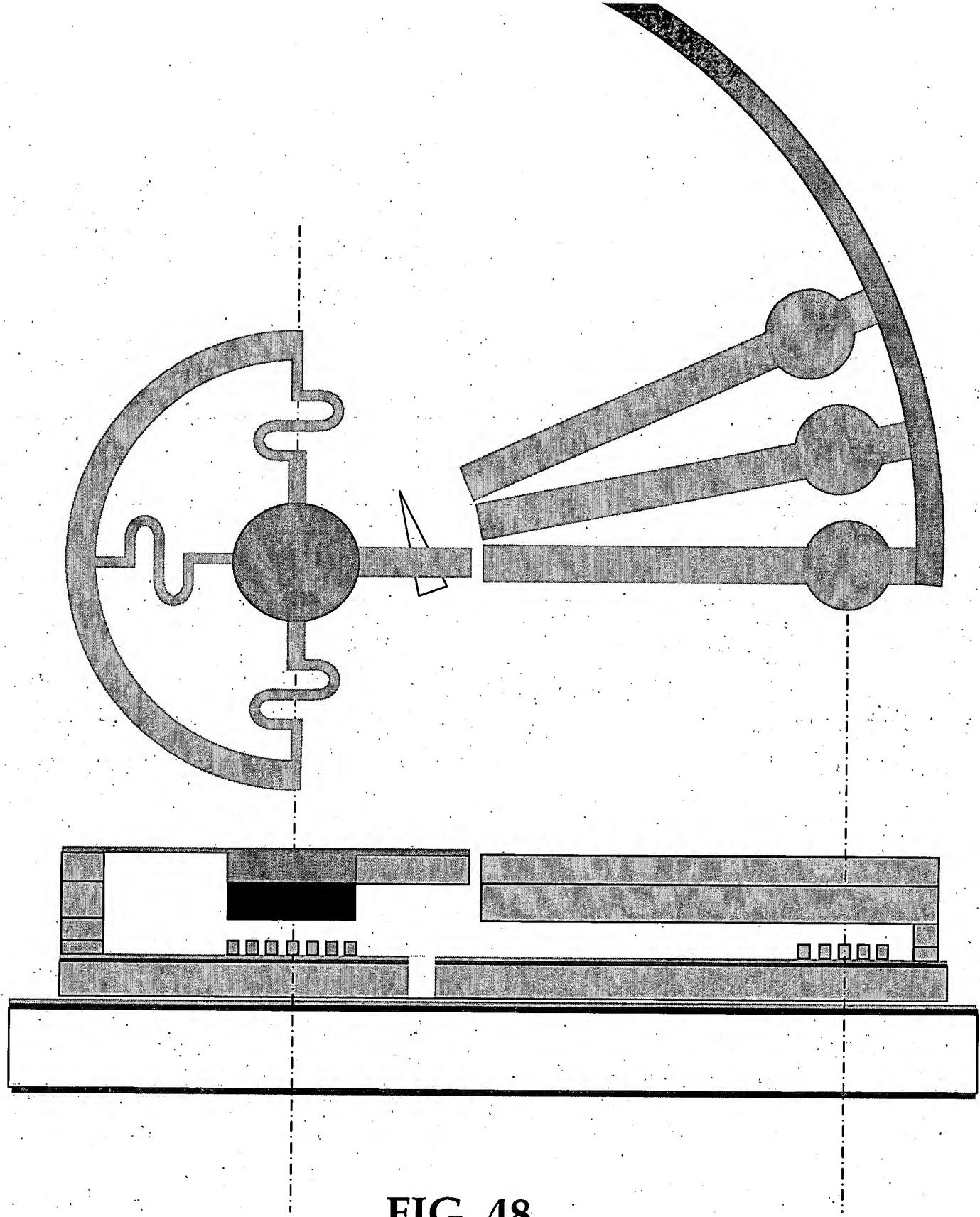


FIG. 48